An Introductory Address
ON
THEORY AND PRACTICE.[1]

Delivered at the Opening of the Winter Session at St. Thomas's Hospital Medical School on Oct. 2nd, 1899,

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GENTLEMEN,—To be called upon to address this great school on the present occasion is not only a grateful compliment to myself but is also for me a convenient opportunity of meeting the teachers and students of one of the great London hospitals whither many Cambridge students resort.

In virtue of an unwritten pact with the hospitals of great cities Oxford and Cambridge teach the sciences upon which the art of medicine is founded and the hospitals teach for us the art itself. A few of our students of medicine there are who, for one reason or another, require a complete curriculum within our walls; some resident members of the University proceed to medical degrees with no intention of practice; some are detained there by other avocations. Speaking generally, however, we discourage our men from following their clinical studies in Cambridge, we urge them into wider fields. On the other hand, many of our students leave us too soon; they depart as soon as the examinations in anatomy and physiology are past. This is an error which too often ends in the loss of that quality of education which it is the function of a university to impart. In respect of the third part of the M.B. degree, for instance, we teach in Cambridge pathology, pharmacology, and the principles of therapeutics; and we cannot subordinate our teaching of these subjects to that of other schools; in the subjects which we profess to teach we examine on our own lines and candidates must prepare to pass on these lines. To leave Cambridge, then, before these courses have been taken is at least to run no inconsiderable risk of the disappointment and expense of rejection. Hence, after passing both the examinations of the second M.B., our students should stay one or two more terms with us until the professors of pathology and pharmacology consider that the requirements of their respective departments have been fulfilled. It is one reason for a high standard of pathology that although a man thrown into practice will improve himself in medicine every day of his work, he who goes into practice ill equipped in pathology will rarely improve himself in this subject. And in any case an academic standard is not only a high standard, but also one different in kind from that of a technical school; and it is the perception of this distinction which is bringing about at last the establishment of a university in London. It differs from a technical standard in its regard to principles as opposed to routine; in its regard to theory as well as to practice. Great as will be the gain of London and of medical London in the formation of a university, liberal as will be its indirect influence even upon technical students, yet I think there will always be room in medicine for the technical student, in the narrow sense of this word, as well as for the academic.

Many men have not the turn for principles, for abstract thought; they may be shrewd and, in a superficial way, observant; they may be quick in emergency, dexterous and adroit, and yet as thinkers stupid. Such men make good or even excellent practitioners so long as the broader conceptions of the sciences bearing on medicine remain somewhat stationary; practical innovations they can pick up so long as these do not spring out of new ideas. Of such were the older surgeons of renown who could not away with the new Listerian ideas. For such men there will always be room, either in the narrower walks of the profession or in those walks of it which are concerned mainly with handicraft; for handicrafts are not often shattered by "earthquake hypotheses," as was surgery a quarter of a century ago. As Darwin shattered the old-fashioned species-grinding, so the conceptions of Lister shattered the practice of surgery, and the old-fashioned surgeons shouted like the silversmiths of Ephesus. And well they might. I remember to this day the words of a great surgeon of my youth, who died in peace before his mind was unsettled by neologies, "Believe me, my boy, nothing pleases me better than to see a laudably suppurating stump."

Not that flexibility of mind is without its dangers; unballasted by wide and various experience it may often betray the adventurer into error. The late Mr. Chorley of Leeds, one of the best of practical men, who in my young days was generously wont to call me to his side in difficult cases and whom therefore I regarded as not without glimpses of the higher truths, would twit me in his racy fashion with my large notions and small experience, but always added apologetically, "But, thank God, I was not born a philosopher, you know." My mind no doubt was then too fluid, while my dear old friend's danger was lest his mind should grow too rigid. I fear, indeed, that my shaky philosophy may have confirmed him at times in his distrust of abstract reasoning.

You have heard men say that such and such a proposition may be theoretically right but in practice is wrong. Now, although paradoxes may well be used to spice our language, this, I think, is a mischievous one. That which is theoretically right cannot be practically wrong—*exceptio probat regulam*—a phrase often improperly translated as "exception proves the rule"—the fit translation being "exception tests the rule." If experience or experiment contradicts a theory, and you believe that in your experience there lies no fallacy, then the theory is either erroneous or it is incomplete. Now, a mere practical or technical training does not guide us to corrections of principle. The practical man, if he find that his work is going wrong, fumbles about till he gets it right, or approximately right, but he does not know on what subordinate laws of things he got out of his hobble; he cannot apply his cleverness under new conditions; he cannot foretell what will happen, nor can he explain to an apprentice the ultimate reasons of his deliverance, which was by way of ingenious empiricism. He has learned his lesson, not by knowledge, but by the rapping of his knuckles. Thus it is that although men thus empirically ingenious are invaluable as pioneers in the earlier stages of societies, for art—i.e., practice—must generally go before theory, yet integration and coördination of our knowledge must go, if not hand in hand with the gains of experience, immediately upon its heels; otherwise we pile up so unmanageable a heap of maxims that, as arts enlarge and needs increase, the learner cannot see the wood for the trees. Quasi-instinctive accomplishments such as these cannot be taught on principle—the imitative apprentice must grow into them; thus the minds of master and pupil, being tied to the bench and exercised chiefly in the technical memory, do not gain understanding or flexibility. As Professor Perry has said of the mere technical man, "Let the thing come before him in a new form and where is his knowledge?" If his pupil ask him to explain how a thing is to be done, or how he does it, he finds it difficult to reply. Such is mere technical knowledge which must be handed down in families or kept stored in a guild as more or less of a mystery; for, like an oral epic or an Oriental art industry, if not passed on thus mechanically from master to pupil it tends to die out. Now all mysteries are by nature wasteful and unprogressive, wasteful because the intimate nature of materials and processes is but half known. Again, the instinctive routine of the adept is cherished as such with a traditional respect until it crystallises into a ritual in which the inessential is preserved as ceremoniously as the essential; the craftsman falls into the vicious circle of illusion wherein what is believed is seen and what is seen is believed. Hence the modern sense is against guilds and apprenticeships; by them not only are study of principles and flexibility of thought discouraged, but practice also stiffens and the thinker is regarded as dangerous, as he inevitably applies the solvent of the speculative reason to customary routine, and in so doing may at first dissolve away some of the kernel with the husk. Thus it is that we hear of the dangers of "theorising"—that the speculative physician is apt to vilipend practical injunctions which he finds on record, but which he cannot for the moment fit into his conceptions. While no practical maxims should be allowed to evade reason, or stand above it, they are to be treated tenderly for

[1] The address itself was delivered from a few notes, and much of the matter in the manuscript here published was necessarily omitted.

the residuum of truth which they may contain; for practical maxims, if not pure nuggets, are of the ore of truth.

Once more, theory or abstract reasoning or principle, whichsoever word we may use, is invaluable to us because it sifts the essential from the inessential and puts compendiously knowledge which in its vaster accumulations would otherwise be unmanageable; furthermore, things are so tried and proved by reason that their sorts are arranged in order of essential rather than of superficial likenesses, are known in their inward parts, and thus can be summed up briefly in what we call laws of nature. As these laws became known, science, which up to this stage had followed art or practice, curiously analysing what had already been done, begins now to move in advance, and to point out ways to new methods, and even to vast new spheres of practice itself. At this stage science is no longer merely a regulating process but becomes creative. For instance, it may be asserted that our railway system might have been built up by rule of thumb, by the ingenuity of practical men, theory following up their hand-to-mouth methods and economising them, but in the rough not indispensable. But this is not the case with, let us say, the modern applications of electricity; in these vast schemes science herself has led the way. Hand in hand with experience—and this rather in the laboratory than in the workshop—theory has proved itself not only a critical but also a constructive agent; and as science advances it will prove more and more a leader and less and less of a mere organiser and economist of human work.

If what I have said be true, academical or university methods—the theoretical habit of mind—will take an ever-increasing place in education. It will more and more be the duty of mankind to make itself theoretical. Why, then, the prevailing distrust of theory, especially in England? Partly, as we have seen, because the guardians of traditional practice dread any tampering with the tares lest the wheat also be rooted up; but there is more than this: men of the world have said, and with truth, that theoretical men, men of the closet, are apt to prove clumsy and errant when they and their more abstract theories are put to those tests from which there is no appeal—the tests of utility and practice. The theory that does not work is properly scouted. At best it can be no more than a mental gymnastic, and there is serious work enough to be done without labouring the faculties and wasting precious time in unfruitful efforts. Now, it is to be admitted that such gibes at the older universities had their justification. Within their walls principles, moral and physical, had been accumulating for centuries, principles which, unless in ethics and politics, bred what seemed to be no more than a sort of Olympian uselessness and intellectual fastidiousness. Yet taken as they were these abstract principles were not useless—far from it; the vast structure of Cambridge mathematics, for example, now that it is set free by such men as Lord Kelvin and Sir George Stokes, is not only regulating but also creating modern physics; and so on for other studies. Still, university studies, did no doubt long remain in the field of what sailors call "dead reckonings"; they took little account of contingencies and even despised them. Therefore in those fields of practice where causation is highly complex and contingencies incessant, formulas which eliminated manifold contingent causes, theories which were too sublime for daily use, were, I had almost said, properly neglected. No study of the anatomy of a horse, no study of the laws of motion, will teach a man to ride. Yet if we admit that in the art of navigation to sail by "dead reckonings" would quickly prove disastrous, it is none the less true that the ability of the sailor to make dead reckonings lies at the root of his craft. If he protests to us "I ought theoretically to be at such and such a place" when practically he is somewhere else, we see that his mistake is not that his theory is wrong, so far as it goes, but that he has made no place in his theoretical scheme for many secondary and tertiary causes, such as winds and currents. He has followed one main chain of causation only, to the neglect of the many other chains, longer or shorter, which make up the web of phenomena. In some studies, as in astronomy, for example, causation is simple and uniform; in others, as in navigation, mechanism, or medicine, it is very complex; and this being so the theoretical formulas must be no less complex. We shall remember, then, that a process cannot be at once theoretically right and practically wrong.

So great has been the distrust of theory that current language is degraded to signify that theory is mere speculation—a sort of curious hobby; the barren fruitage of an unpractical and dreamy mind; a habit of thought fraught with danger to the usefulness of a student who has to engage in the practical work of life. Also that a university career is conducive rather to those eloquencies and elegancies which may add to the amenities of private life but are becoming only in people of leisure. Latterly, indeed, it has been grudgingly admitted that there is a scientific use of the imagination, but these products of the imagination are credited with but a transitory value, and even at this are regarded as apt to dazzle and mislead rather than to illuminate. It was but the other day that a friend of mine, whose attainments and abilities in his own sphere I am scarcely fit even to appreciate, said to me, and stuck to his saying, "that a certain matter had passed out of the region of theory into that of scientific fact." I ventured to urge, with respect, that he must mean that it had passed out of the sphere of conjecture or opinion into the state of theory. For what do we mean by this word "theory"? A theory is a statement of causation—that is, of the invariable order of certain phenomena. It is as near an approximation to a law of nature as the epoch will permit. And what is a statement of "fact"? It is but a record of an alleged particular observation in the past, an observation, with all its fallacies and inferences to be measured, whether of a natural sequence or of a sequence in a series artificially brought about. Newton, we will suppose, saw the apple fall out of the tree; upon this event, taken, of course, together with all the like experience and knowledge which he then possessed, he founded the theory of gravitation. The former is called a fact, the latter a theory; yet was not the fall of the apple, taking the legend as it stands, itself an inference, however short and obvious the process of reasoning? Newton may have suffered under a hallucination: no apple may have fallen, or he may have taken a ball of wool for an apple, or the apple, if such, may not have fallen at all, but have been thrown from the tree by a mischievous boy; and so forth. Even if Newton himself were to tell us that an apple fell the statement would after all be an inferential proposition. There is perhaps no sequence in nature which can be stated clear of inference, yet with inference theory begins. You see, then, that it is as impossible for man to practise clear of theory as to walk in the light clear of his shadow. Every thought, every word, is bathed in theory, hypothesis, opinion, or conjecture; nay, there are no theories, if I may so call them for a moment, so sweeping and so unchastened as those of the boasted practical man.

If, then, we live and breathe in theory, and yet theory is but an unsubstantial fabric, of temporary value at best, leading us to facts only as a miser's ghost may point to a cash-box under the hearthstone, we are in a parlous state. We may well desire to keep clear of universities. Now we are placed in this dilemma by a debasing use of the Queen's English. When the man in the street speaks of theories he means it as a term of abuse—meaning for the most part guesses, conjectures, opinions, or hypotheses. Even as I am thinking over this matter I see by chance in an article by a very able man of science the word "theory" applied on one page to signify two different things—namely, first, a doubtful tale; secondly, a question whether certain fragments of bone were human or not. Surely this is to disintegrate and abase all language. The one case is no statement of a natural law but a matter of personal credit; the other is a matter of the accuracy of the anatomist. Still, the objector may persist that even full-grown theories fall, and that the past shows an unsubstantial pageant of their ghosts. In so far as this is true it points to the relativity of all knowledge, theoretical or practical. No theory is final, yet there are degrees of relativity. A theory is a statement of the order of certain phenomena which hitherto has withstood all tests; one which has been verified so often that we may find a firm footing on it at any rate for some time to come. Of such, for example, are the Newtonian law of the inverse squares, the Darwinian law of the origin of species, the theory of the conservation of energy, and so forth. The best of theories must no doubt obey the law of all things: to die if only to be born again. But to speak of the mere opinions and surmises which meet us at every turn as "theories" is to debase the coinage of language because

few of them reach the position even of hypotheses. Speculations, conjectures, and guesses are poured out in abundance, which, if coming from trained minds, may have their measures of interest, though they are of the froth of thought; opinions are statements of more stability, but we speak of opinions rather on subjects not admitting of decisive or exact experiment, such as politics or morals; theory is a large piece of knowledge as true as we can make it, and one which has been current among experts long enough to be thoroughly tested.

What, then, is a hypothesis? A hypothesis is a clay model of a theory, moulded and refined by an expert in order to see how far it may represent nature. The sculptor tests it, calls in his friends to see it and to criticise it; then, after undergoing every proof and every modification that comparison with nature can suggest, it is worked in marble, or is baked into terra-cotta as permanent as the conceptions of a della Robbia or a Desiderio di Settignano. Thus perennial we call it a theory, admitting with humility that, like all human work, it may be shattered or it may decay. If a conjecture, then, be the first notion in the mind of the artist, a hypothesis is his model in clay, and a theory is the permanent form; whether durable as pot, marble, or brass. Let us be careful, then, not to use the word "theory" when we probably mean not even a serious hypothesis, but a mere guess.

A theory, then, when thus accomplished, is within our minds that which, speaking objectively, we call a law of nature; it is a brief and summary statement of the invariable order of certain events—as, for example, that irritation of certain nerves will inhibit certain functions. This theory is, indeed, far from completeness; for instance, the word inhibit contains within itself material for many hypotheses; still, accidents apart, such sequences in a long series of researches have been observed invariably. To call this statement a fact is an abuse of language. A fact is a particular thing already done; it is a fact, for instance, that Queen Anne is dead; that an hour ago I tied my shoe; that in a test which I applied yesterday a particular event happened, and so on. A fact is but a single past instance; a theory not only states an infinite series of past events but also, what is far more important, that which under identical circumstances always shall happen. A fact is a very small piece of knowledge, a theory a very large piece, and one stretching not only into the past but into the indefinite future. Surely, then, a theory is anything but a flimsy vision of truth. It is, indeed, truth itself, taking truth, as in science we do, to mean no more or less than an affirmative proposition.

By way of illustration I will quote the following statement from an able writer—one which in substance has often been made in various language—namely, that "cancer is a treason in the republic of the body; certain organs, owing, let us say, to the advancing age of the patient, are losing their uses; in some of them a little knot of cells rebels, multiplies, and ravages the territory of the ungrateful republic." Now these phrases do not state a theory; there is no definite statement of sequences and concomitants, no approximation to a law or laws of nature which have been tested time after time and by one adept after another; they are too vague for testing; before it can be judged at all the paragraph must at any rate be broken up into specific propositions which can be submitted in turn to affirmative or negative issue. Nor is it even a hypothesis—the clay model of a theory; for even a hypothesis must have its definite propositions, capable of experimental test and open to acceptance or rejection accordingly. Yet it is something more than a mere guess or surmise; it is a strong though vague impression made upon the mind of one versed in the subject of which he treats—namely, that on the whole the phenomena of cancer will turn out to be of such and such a kind—an opinion which we shall receive with the respect due to the impressions of able and expert men, but with no sense of conviction, and no trust in practice: it is too unsubstantial to be taken seriously. But if, on the other hand, a skilled observer tells us that in cancerous masses he has demonstrated certain bodies resembling microbes, that he has isolated these, and finds them to have certain specific qualities, that they breed in certain media, and that inoculated in certain animals they produce tumours, we have from him something far no doubt from a theory, but at any rate a working model of one—a hypothesis which, after long and intimate testing, will either be verified, in which case it will take its place as a theory, or will be found wanting and sink into the limbo of will-o'-wisps.

But if, leaving cancer, we turn to tubercle we shall find in the generalisation of Koch a hypothesis which is fast stiffening into a theory—namely, that tuberculosis is due to a certain microbe, separable, propagable, inoculable, and in pure cultures reproducing the disease. So far the verifications have been *ubique et ab omnibus;* and if, as time goes on, this unanimity continue, Koch's description of the causation of tuberculosis will pass definitely out of the rank of hypothesis into that of theory. Of a hypothesis, again, having a considerable measure of proof and thus being more than a conjecture, yet not yet established as a theory, I may instance the mosquito hypothesis of malaria.

Now whither have we come in this abstruse survey? To this, is it not, that theoretical knowledge is not an adumbration of knowledge but knowledge itself in the longest and broadest pieces in which it is to be had—knowledge which enables men to make forecasts of long sequences; and if a university trains men first to deal with, and then to discover, knowledge in larger pieces than other folk have it, shall we not see a university to be a gateway to truth and to practice, even so far as truth is fruitful to mankind? Yet we have seen that there is a correlative danger—the danger of becoming absorbed in the contemplation of general causes; that in those pursuits in which results are determined not so much by a few general causes as by a greater number of partial causes in complex combination too great a reliance on uniformity may blind us to those many interferences and contingencies to which the workers practised in complicated arts are alive, being taught them, as we have seen, not reasonably, but by dint of rule of thumb.

There must be, then, many bridges between the thinker and the worker, and hence there arises a new sphere—that of applied sciences—wherein the spirit of contemplation and the power of handling large ideas are so corrected by habitual tact and by practical adaptation of means to ends that the chasm between the contemplative man and the technical adept is bridged over. By the introduction of such applied sciences and empirical arts as engineering, medicine, and the like into Cambridge we hope so to enlarge the conceptions of the man of action as to fortify, to extend, and to illuminate his practice. Such a training, however, is not found only within the walls of a university; it is to be found in the closet of the humblest searcher after truth and in all schools where the search after new truth—the establishment, that is, of new theories—is pursued. But, broadly speaking, a technical school is one in which portions of science and practice are cut out and cunningly fitted to practice for the use of those who have not the time or the capacity for the pursuit of truth in its deeper and wider and more disinterested aspects. The touchstone between a technical school and a higher school is, then, the record of new theory produced; a technical school, as such, does not pretend to pass beyond the selection, distribution and practical application of current knowledge; its students are only equipped for work more or less of a routine kind. An academic school, on the other hand, by training the student in the pursuit of new knowledge turns out men competent to re-adjust practice continually to larger conceptions, and to foresee events so much farther ahead that new fields of practical achievement and more economical processes within these fields are incessantly opened out. In the United States and in Germany and even in Scotland this prodigious fertility of theory is far more clearly perceived than in England. The German, like the Scotchman, born to a tradition of higher education, has been far more habituated to deal with knowledge in large pieces than the Englishman, who has been too much given up to pioneering and to muscular proficiency to be curious in learning. The stubborn and even grotesque attitude of Englishmen towards research was remarkably manifest in a paragraph on Major Ross's investigations into the causes of malaria which lately appeared in a weekly journal—one, on the whole, of eminent ability. "Major Ross," wrote the editor, "presumably a surgeon, has announced from West Africa that he has discovered a mosquito which causes malaria." The editor then went on to state some obvious difficulties in the supposed hypothesis of Major Ross and curtly dismissed it. In the next number appeared a letter from a travelled correspondent who comically pushed aside the observations of Major Ross as "theories," while he counted certain wholly unverified impressions of his own in foreign parts concerning the dissociation of mosquitoes and fever as "facts." They were "facts" because they were the dogmatic assertions of a man of the world untrained in research, and Major Ross's observations were the opposite of

facts because they were made by a trained observer with the help of a laboratory and instruments of precision. The editor's "presumably a surgeon" was good, not only for its affability, but also in its betrayal that the writer was utterly ignorant of the subject on which he made this deliverance. Now, I doubt whether there be a journal of the same standing in any other country of which the editor would conceive his own casual opinion on a matter of special research to be of the smallest value whatever.

Whether the Englishman be a cricketer, or a buccaneer, or an engineer's fitter who turns a crank axle to a thousandth of an inch, it is on muscular dexterity, strength and personal cleverness that he prides himself; such is the Viking blood in him, the self-sufficingness, the impulse not to herd in societies, as the early Mediterranean peoples did, but to carve out for himself new settlements, penetrating far into forest or creek. The tradesman who to-day cannot rest in town but, as soon as labour is over, speeds away to farm or villa closely walled off from his neighbours, or the merchant or lawyer who escapes to moor and loch, are herein sons of the Northmen. This opiniativeness, this sturdy individualism, scorning book-lore, hating all drills including school drills, this peacefulness when he is let alone, this turbulence when he is interfered with, are now some disadvantage to Englishmen in days when not knowledge only but practice also must be continually born again and theoretically reorganised if they are to progress. Happily, there is reason to believe that the English brain, if its owner choose to bring it into the field and for a while to forget his personal prowess, is at least as good as the brain of any other people. Isolated as its efforts have been the products of English brains are second only, if second at all, to those of the Greek. Yet even in intellectual and imaginative production the English genius has been individual, eccentric, wilful, indocile, rather than the orderly product of castes or schools.

We see, then, that to say, as a distinguished man of science said publicly the other day, that "we want less theory and more work" is to ruin all accuracy of language. It is only by vigilant and incessant work that speculations and hypotheses can be raised into theories; and only by the jealous ward of theories that a body of learning can be built up, independent of all accidents of time and place, immortal. I repeat that it is for theories and by theories that universities exist: that it is to teach theory and to show how to make more and more theory that their existence is justified, and that by this function academical training is distinguished from technical instruction. It may perhaps be true that there are working hypotheses enough at present to engage all workers in the task of deciding whether they are of the stuff of theories or not, though even this assertion would need considerable reserves.

How far the speculative intellect is to be disciplined, or to be allowed free flight, is a very difficult question; but it may be said confidently that if the power of accurate and impartial observation be rare, that of organising observations is still rarer, and that of conceiving the most general statements of the invariable order of phenomena is rarest; yet this is the power of theorising, as opposed to guesswork and to the handiness of a craft.

It is true, no doubt, that for most of you a life of activity is the portion, and I have said that on investigation alone you cannot cultivate the faculty of sagacious and rapid judgment, happy compromise, and decisive action on which success in practice largely depends. A certain wise man of my acquaintance said the other day to a young friend, "If you want to make an egregious ass of yourself try acting on principle." Action, if it is to be useful, rests upon a prompt habit of selection and utilising not the best means, but the best means at hand. Yet the selection of means depends at bottom upon some approximate knowledge of the natural order of causation and on the possession of a mind trained in the scientific habit. Without the incessant converse with theory no mind can be trained in the scientific habit—that is, in the cunning of nature. The man of scientific habit apprehends quickly the fashion after which nature at a certain juncture is likely to work; the apprentice who has not acquired this capacity, however efficient a performer within the lines of his traditional handicraft, becomes a laggard even in practice, is always wasteful in his means, and is both inept and unwilling to readjust his methods in the light of advancing knowledge. Finally, in order to make men not only masters of abstract knowledge, but also wise in counsel and able in practice, I still think that up to a certain age—to whatever age when specialisation must begin—the old grammar school education is the best. On the one hand, in mathematics the simpler and larger laws of nature are taught; by it and the more abstract mechanics causation, as invariable sequence, is inculcated. On the other hand, in the humane, the so-called classical, side the student is versed in those moral sciences—in ethics, politics, and literature—in which causes are many, complex, and conflicting, and yet in the spheres of which action must be taken—taken on probabilities, on uncertainties, on a choice of alternatives. He learns how men acted in the world in which he will have to act—namely, on approximate as well as on exacter knowledge; he perceives that a second-best course consistently, boldly, sagaciously, and consistently pursued is better than the best scheme carried out timidly, sceptically, and without calculation of accidents. In medicine we have to do our work not, as the engineer, with steel, which, indeed, has its deceptiveness, nor with gases, which are indeed elusive, nor only with drugs, which are double-edged, but with men who are full of flaws, waywardnesses, and issues into the unknown beside which the deceptions, the elusiveness, and the duplicity of inanimate things are as nothing. A physician, then, has to know not only his sciences but also how to practise them upon the most wayward, complex, and incalculable of materials. This had Cæsar to do and Pericles; this insight into action and motive had Aristotle and Homer; this interest in the thoughts and ways of mankind inspired Herodotus and Hippocrates.

And now in conclusion, gentlemen, let me say a few words of god-speed to those of you who are entering into the duties and responsibilities of your profession—a profession attained after not a few years of arduous and various industry. You have mastered the studies required of you—tasks far wider and more exacting than they were when I entered the profession. It is not, I believe, a vain thing to say that the education for our profession, in its foundation on the exact sciences, in its training in descriptive science, in its instruction in biology, in the fruitfulness of its practice, and lastly, in its converse with mankind, is the highest education which is ordinarily given to the disciples of any calling of modern society. This being so, I know that many of us think that the social position of the medical man is not correspondingly high, nor its rewards, in the middle ranks of it, sufficient. And no doubt we are right in some measure. As regards the pecuniary reward—a large matter to discuss—I will only say that I earnestly hope that as you younger men with this more exact and liberal education take the places of your predecessors who had not the same advantages, even your fees will increase. A silent change, almost a revolution, is taking place in society which is bringing the physician into a leading place throughout the land. Owing to economical and other changes the squire is waning; perhaps in most districts the old squire is gone. The parson, who held the next place in country districts, seems to be losing touch with society and with the best religious and intellectual life of the day. Thus the physician is becoming the trusted counsellor and the guide of the people; and upon his wisdom, uprightness, and gentleness the social quality of towns and villages must depend more and more. It is with comfort, then, that I perceive, or think I perceive, some mitigation of the petty bickering and unworthy mutual distrust which have too often prevailed among country medical men. That the two or three medical men of a small town should be scarcely on speaking terms, if not indeed at enmity, degrades our honour, makes us ridiculous in the eyes of men of sense, and, indeed, encourages the public to pay us according to the smallness of our minds and the sourness of our tempers. Again, it is to be remembered that hitherto our profession has been one of private services to private persons; it has not been one of the great public services which, rightly enough, have taken as such precedence of us in the State. A picturesque profession we shall never be; we shall never wear mitres, wigs, or spurs; yet our profession likewise is now rapidly ascending to a high place in the State as a public service and is thus advancing in power and in dignity every day. In this growth of responsibility and honour in the counsels of the State you will all profit directly or indirectly; and of your growing honour it will be your ambition to make yourselves ever more and more worthy

An Introductory Address
ON
THE QUEST OF THE IDEAL.

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GENTLEMEN,—One of Manchester's most gifted sons, who has embellished our literature by his stately rhetoric and so used our language as to add to its polish and beauty—Thomas De Quincey—born near this spot in 1785, has described his native town as "gloomy and of repulsive exterior, mud below and smoke above," but he has added that it contained a population with strong hearts, of noble moral qualities and infinite perseverance, and "as yet not much alloyed with Celtic adulteration." At the time of which De Quincey wrote—100 years ago—the torch of improvement had not been lit in Manchester or carried through its slums and alleys, and could he revisit the glimpses of it to-day he would have to withdraw his "repulsive" adjective, admit that the gloom had been pierced if not scattered—as perhaps it never can be altogether where a teeming and steam-drudging population closely congregates—and he would have to redouble even his fervid approbation of the enterprise and resolution of its inhabitants, with or without Celtic admixture. On all hands he would discover growth and evolution, unmistakeable and marvellous signs of progress, enrichment, refinement, and philanthropy; and in this institution, under the auspices of which we are assembled here, he would recognise not the least admirable of the many great public works to which the spirit of the Manchester of the nineteenth century has given birth. Standing here, as I do this afternoon, an alien though a well-wisher, it would be idle for me to repeat to you your own family history, which you probably know already better than I do, and I shall not therefore attempt any detailed account of the rise and triumph of your college and school. It would be idle for me even to try to do justice to the feelings with which you regard them, as I am not steeped in your local interests and traditions and am unacquainted with your catchwords, but it may not be unprofitable that I should tell you how your school and college strike a casual visitor and what an impartial outsider thinks of their position and prospects.

Well, gentlemen, the primary impression on the Uitlander surveying your college and school is one of wonder at their early maturity and youthful lustihood. They are of yesterday and yet the vigour of centuries is in their veins. At the period to which I have already alluded—100 years ago—when De Quincey was learning Greek to some purpose in your grammar school, then 330 years old, there was no serious thought of a college in Manchester. No doubt some vague schemes for providing training for those entering the learned professions and commerce had been put forth, but these had been speedily snuffed out by the practical men who argued that higher education spoilt boys for commerce and that to be successful in business men must be kept intellectually lean and hungry, and it was not until 1825 that the first successful effort was made to establish an institution for systematic teaching in any of the higher branches of knowledge. Before that time there had been isolated courses of lectures on anatomy and chemistry, so that the claims of science were beginning to be felt, and in 1814 Mr. Jordan had essayed to organise a medical school, but it was not until 1825 that a properly-equipped and coördinated school of science was commenced, and I think we must be gratified to remember that that school was entirely the work of the medical profession. It was Mr. Turner who founded it and that action of his seems to me to have been the germinal vesicle of the magnificent organism—Owens College—in which we now rejoice. That school, which was provided with lecturers on anatomy, chemistry, materia medica, surgery, midwifery, and botany, was the first provincial medical school in England, and in consideration of that fact and of its public usefulness it was permitted in 1836 to add the prefix "Royal" to its name. It is only three-quarters of a century—a man's life—since Mr. Turner's first step was taken, but in that brief span of time there has been incessant movement and steady advance in educational affairs in Manchester—advance marked here and there by momentous and memorable events, such as the foundation of Owens College in 1846 and the incorporation of your medical school with it in 1871.

Now, I venture to believe that the advent of Owens College—of Owens College or of a college of its character—in Manchester was inevitable in the nature of things. Manchester has all along headed and guided the industrial revolution which began in England in the middle of the eighteenth century and which has substituted the factory system for home handicrafts. She has been a pioneer in inventions which have multiplied human production a hundredfold, in the application of mechanical power to the service of man, and in the construction of internal communications to meet the ever-increasing demands of trade and commerce. Her population, her wealth, her industries have advanced by leaps and bounds; she has become not merely a hive of manufacture, but a world warehouse and mart; and while this vast material expansion has been going on it is certain that her wits and moral attributes have not stood still and remained narrow and contracted. The needs, the faculties, the aspirations which gave the first impulse to her development and subsequently sustained it have themselves drawn sustenance from the prosperity which they have created and have grown with her growth. Her thoughts have "widened with the process of the suns." She may not have fully realised Kant's dictum that not a web of cloth can be properly woven where metaphysics are neglected, but she has come to know that intellectual training has a money value—that there are mental as well as physical forces to be reckoned with in the world—and she has gradually awakened to a sense of the higher obligations which wealth entails. With canals and railways connecting her with the four corners of the earth it became impossible for her to adhere to the old packhorse system of education. The free circulation of goods involved the free circulation of ideas and the emergence in her midst of a seminary of science and culture was not less unavoidable than the transition from the borough reeve and his constables who so long ruled over her to her present system of municipal government.

A college in Manchester had been in the air for some time before the notion condensed itself in the benevolent brain of Mr. John Owens, and indeed in 1836 an attempt to establish such a college only failed owing to the impossibility of reconciling the claims of the two rival medical schools. Mr. John Owens gave noble expression to what the citizens of Manchester had long been thinking, but it is interesting to note that it was not only the stirring in him of the spirit of the age, but a more particular motive, which precipitated his action. His bequest had attached to it the special condition that the education given in the college which he projected, while similar to that at the English universities, should be free from all religious tests; and it is therefore allowable to speculate that had the Act of 1871 which abolished subscription to the Articles, declarations of religious belief, and compulsory attendance at public worship in the Universities of Oxford, Cambridge, and Durham been passed 30 years sooner your Manchester college might not have enjoyed the bounty of Mr. John Owens. It almost seems as if in this instance the march of learning had been expedited by the shackles which bigotry had fastened on her limbs. But whatever prompting may have been operative in the inception of Owens College it speedily justified its existence. Based on John Owens's legacy, which yielded £97,000, and buttressed by generous donations from many sons of the city, it has dispensed good gifts around it, has attained widespread reputation, and has become the prototype of kindred institutions in other parts of the country. It has housed itself in buildings which must be called palatial and provided itself liberally with the paraphernalia of science, and by its amalgamation with the Manchester Royal Medical School has completed and consolidated its constitution. That amalgamation, which appears to me, from my exoteric standpoint, the crowning incident in the career of Owens College, has proved a happy and well-assorted union and has been blessed with a numerous progeny. When it was consummated in 1871 there were 99 students enrolled in your medical school, whereas last year the entries numbered 423, and although I do not want to see the medical profession swamped in its own superfluity I hope that that figure will

be exceeded by the number of entries in the session which we begin to-day. I do so because I am convinced that here at any rate the medical student will be thoroughly and honestly prepared for his life-task. You have class-rooms, laboratories, museums, and libraries unsurpassed in their arrangement and equipment; you have, in the medical charities affiliated with your school, an unlimited supply of object-lessons in medicine and surgery and in every specialty into which medicine and surgery have branched out; and, above all, you have a body of teachers learned and skilled in their respective departments, earnest in purpose, and jealous of the fair fame of that Manchester school which has already won renown and assumed a distinctive character and which will probably be more enduring than that transient phase of political opinion which has hitherto borne the name. In the presence of some of these teachers here this afternoon it would be disconcerting were I to divulge to you the estimate which I, as a stranger within your gates, have formed of their merits individually. Let me just say that they are one and all men whose eminence in their vocation is recognised far beyond the county of Lancaster and who are worthy successors of the professors and lecturers who have in the past given lustre to your school—of men like Sir Edward Frankland (for whose death our sorrow is still in the green leaf) and Sir Henry Roscoe, chemists of the finest calibre; of my friend Dr. Arthur Gamgee, a born genius in physiology; of Mr. Lund and Mr. Southam, past masters in surgery; and of Dr. Morgan and Sir William Roberts, deep-seeing and judicious physicians.

The shell of your school—the buildings designed by Mr. Alfred Waterhouse—must arrest the attention of all your visitors, as they have done mine, by their amplitude and nice adaptation to their purpose. Severely plain in outward appearance, as economy demanded, they are rescued from meanness of aspect by the treatment of the gables and parapet and by the commanding tower, while a tall chimney shaft that surmounts them is an appropriate feature in a Manchester edifice. Goethe's dying words, "Light! more light!" both in their literal and figurative sense, are an excellent motto for a medical school and seem to have been borne in mind in the planning of your buildings, for their elevation shows an altogether unusual proportion of window to wall-space, while their special research laboratories, intended for the use not merely of ordinary students but of advanced students, original investigators, and medical practitioners, furnished with all the most approved apparatus for chemico-physical, histological, bacteriological, and pathological inquiry, cannot fail to prove inlets of scientific illumination.

Your school buildings have cost the college authorities upwards of £70,000 since the school and college joined hands—that is to say, during the last 25 years—and this, I see, is frequently referred to as a munificent expenditure. So it may be if measured by the standard of what has been done elsewhere, but so it is not if measured by the requirements of science in these days or by the duties and resources of this great city. My address this afternoon is in the nature of a runaway ring and therefore I need not mind if it startles anybody; but I have no wish to startle, and use the words of soberness when I say that the £70,000, although adequate so far, does not exhaust the pecuniary claims of the medical school on the community and that if, in the future, it asks twice that sum to meet the educational calls made upon it and to keep pace with science, which is now so mobile and so expensive, Manchester should cheerfully put its hand in its well-lined pocket and produce the money, knowing that, after all, it is only a prudent investment in life assurance. In this same last quarter of a century during which this £70,000 has been doled out Lancashire has spent in enlarging her already existing costly pauper lunatic asylums £979,250, besides becoming liable for £335,000 for the erection of the new asylum at Winwick; and only the other day the Asylums Committee of the London County Council asked for a cheque for £360,000 to provide a sixth leviathan asylum for London. Upwards of a million and a quarter for asylum extension in Lancashire—£360,000 for one asylum in London—just reflect what sort of a college and medical school these sums would have secured. £70,000 spent on a great medical school in a quarter of a century evokes pæans of praise, while £360,000 at one fell swoop expended on a pauper lunatic asylum induces scarcely a grumble. I have no protest to utter against the outlay on lunatics. It is necessary and humane and not a penny of it is extravagantly thrown away. I merely wish to indicate how much more easily money is obtained by automatic rating than by voluntary effort, to contrast the expenditure on lunacy with that on learning, and to suggest that if we were to spend a little more on the latter we might have a little less to pay for the former. It is unhappily true that insanity is increasing among us in a manner well calculated to create anxiety. The recently published report of the Commissioners in Lunacy administers the *coup de grâce* to the official and statistical optimism on this subject by which the public has been so long lulled to rest, but which has been in its death-throes for some years past. The big annual increment of lunatics necessitating the constant and portentous extension of asylum accommodation cannot any longer be explained away. No juggling with figures will get rid of it. It is now certain that, as a few of us—voices crying in the wilderness—have long contended, the balance between the effects of those conditions of modern life which are preventative of mental disease and those which are causative is on the wrong side. Mental and nervous diseases are the diseases of the future and we have as yet no protective serum to use against them. All the more important is it, therefore, that they should be diligently studied and scientifically investigated; and this brings me to the point where I can connect an apparent digression with my proper theme.

In the early days of your school the lunatic hospital of Manchester formed part of the General Infirmary, and then, for good reasons and with excellent results, it was moved out to Cheadle, where it now is and where Mr. Mould successfully presides over it and utilises it for clinical teaching. The asylum at Cheadle admirably supplies a clamant public want, but I confess I hope that the day will come when another lunatic hospital will spring up in Manchester—an asylum organised in all respects like an ordinary hospital and near to your school, so that you may have daily access to it. In the lunatic hospital of my imagination the medical staff, consisting of consulting, visiting, and assistant physicians, aided by specialists of several kinds, would be exempt from all the administrative and clerical work which now weigh so heavily on medical officers of asylums and would thus be free to devote themselves to their purely professional duties, to research, and to teaching. Resident house physicians and clinical clerks would maintain constant observation and keep the medical records, while psycho-physical and pathological laboratories would afford facilities for experiment and demonstration. Courses of lectures on psychology, neurology, and mental and cerebral pathology would enable students to benefit fully by the work in the wards, which their critical presence would always maintain at a high pitch of thoroughness, and prepare them to deal in their own practice with a prevalent and obscure group of diseases, while an out-patient department would bring under skilled treatment cases of mental derangement in their incipient and most curable stage.

I am not inappreciative of what is being already done in the way of science in our asylums in this country, and especially in the department of pathology, often under disheartening and adverse circumstances, but I say deliberately that until we obtain in London, Manchester, or elsewhere a lunatic hospital organised somewhat on the lines which I have indicated, the great problems, social and medical, in connexion with insanity which press for solution cannot be adequately dealt with. Perhaps some still hidden purposed benefactor of your school and lover of his species—or perhaps the County Council, tired of building costly receptacles for decayed and damaged mind-stuff—may bestow such a genuine lunatic hospital upon you and thus vastly extend your usefulness and heighten your prestige.

I am, I admit, heavily requisitioning the future on behalf of the Manchester Medical School, and it may be that in doing so I have not sufficiently acknowledged what Manchester has already done for it. No doubt the medical school has owed much to Manchester, but, on the other hand, Manchester has owed much to the medical school. In the central coil and in every purlieu of the city its influence has thrilled; there is not a sumptuous mansion or a miserable tenement in which some emanation of its virtues has not been felt, for a brisk and efficient medical school not only trains medical students but raises the whole tone of medical practice in its vicinity, especially when, as in your case, it affords opportunities to medical men engaged in practice to renew their studies from time to time and so to keep abreast of all advances made in our knowledge of disease, its nature, causes, and effects. I do not know any surer

blessing which a populous district can enjoy than to have a medical school in its midst. This radiant influence of a medical school, if I may so call it, cannot be weighed or measured, but it is real and substantial enough, and of course it will be most potent just where the conditions of life are most insanitary and provocative of disease. And so in Manchester in the past it has had free scope and sway. When the Queen visited this city in 1851 her keen and sympathetic eyes noticed, as she has set down in her diary, that the crowds in the streets both of Salford and Manchester were made up of "a very intelligent but painfully unhealthy population." About the same time Mrs. Gaskell, whose writings did much to awaken kindly feeling and break down the barriers separating employers and employed, pictured the mill-hands in lugubrious colours. The men, she said in "Mary Barton," were of stunted growth and fragile build, and had wan, ashen faces, telling of scanty living and grinding toil, and the women were lacking in beauty and symmetry and showed pinched and sallow countenances, in which acuteness and intelligence contended with care and debility. All that has been changed. Manchester crowds to-day present no such saddening spectacle. Your proletariat is as winsome and robust as that of any other large manufacturing town. Your death-rate has dropped. Yet much—infinitely much—remains to be done before you can be said to have reached a level of public health which can be pronounced to be even tolerably satisfactory. In some of the slum districts of Salford, now happily to be cleared away, the death-rate has in recent years reached 100 and even 104 per 1000; in one district it has never fallen below 60 per 1000 for the last six years. In some parts of Manchester—for instance, in Hulme—shocking overcrowding prevails. At a recent meeting of the City Council it was stated that in one case in Hulme a father, mother, and six children all slept in one room eight feet by six feet without a fireplace and with windows that would not open. In another case a father and mother, short of work and so short of food and fuel, occupied, with their two children, a small room the fireplace and windows of which were papered up to keep out the cold. Little wonder that one night the youngest child was asphyxiated. It is clear that still cheek by jowl with your opulence and refinement are pinching poverty and squalid debasement; and that those indefatigable promoters of disease and degradation, over-crowding, over-pressure, over-drinking, under-feeding, under-breeding, under-thinking, are still busily doing their deadly work amongst you. Strenuous efforts are still required of Manchester to raise its submerged masses into decent habits and health, and in these efforts it will, I am sure, draw inspiration, guidance, and support from this centre of medical science. In what has been already done to raise the masses your medical school has had some share, for whatever ameliorations have been secured have been due not solely to economical changes but also to the sound doctrine of sanitary reform which has here been preached. Your school has diffused around it just methods of thinking on medical and sanitary matters, and I question whether, except for the atmosphere which it has created, those wise measures for the prevention of tuberculosis which Dr. Niven and Dr. Delépine have advocated would have been adopted by your civic authorities.

I have already referred to what is no doubt a just source of pride to all connected with this school, and that is the steady arithmetical progression in the number of entries of students from year to year—a progression all the more gratifying because it has been, as the registers of the General Medical Council show, proportionately greater than that in the other medical schools of Great Britain. It is thus evident that the advantages which you offer are attracting students from beyond your own proper fief or territory and that you may in time become no longer a county palatine but a cosmopolitan institution. It is not, however, by its entries but by its exits that a medical school is to be judged—not by the raw material but by the finished article—and in that respect you have, I think, no reason to be ashamed, for having looked over the list of your associates and of your graduates in the Victoria University and in the London University I observe that for so comparatively young a school you have sent forth quite a remarkable number of men who have already made their mark in their profession. They have won a good name for your school; and it is for the men whom I see before me to live up to the standard they have set and, with ampler opportunities than they enjoyed—for your school is always improving its machinery—to better their example.

It is to impress that obligation upon you that I am here to-day, for an introductory address such as I am called on to deliver is meant, I believe, to be stimulating rather than instructive, to emphasise the claims of duty rather than to convey exact information. The occasion is one charged with emotional significance, for the start on a new career, or on the second, the third, the fourth, or the fifth lap of an arduous race, with much depending on the issue, is a critical point when those making the start are peculiarly susceptible to affinitive impressions and when those standing by are moved by generous sentiment. Reverting to my own student days I can recall amidst the "dreary drip" of routine lectures the awakening splash of an inaugural address by Goodsir, that illustrious anatomist, which is echoing still down the long colonnade of years. I should consider myself fortunate if I could say any word this afternoon that might stir one or two present to more vigorous endeavour in the work before them, that might heighten in a few their conception of their errand in life, or that might bring home to the many an enhanced sense of the responsibilities they are undertaking.

In considering how I might best in some small measure achieve this it has occurred to me to improve the occasion by warning you against certain dangers which will assuredly beset your path—dangers not generally recognised, but to my thinking real enough. Do not apprehend a sermon or a disquisition on morals. The dangers I allude to are not ethical but mainly intellectual. I assume that you are fully alive, without admonition of mine, to the profitableness of the cardinal virtues—justice, prudence, temperance, and fortitude. I am confident that I should merely bore you by bestowing my platitudinous blessings on industry and punctuality, or by depicting the temptations that will assail you and stripping them of their fascinating disguises. I do not propose to speak to you *in loco parentis*, but merely as one who, having gone before along the road you are about to travel, is familiar with its windings and is able to caution you against certain tendencies which are incidental to the route and which, from my point of view, are sometimes lamentable and disastrous in their results. I allude to those tendencies to materialism which regards mind as a mode of motion, or to its congeners, naturalism, which subordinates spirit to mechanism and sets up unchangeable law as supreme, and agnosticism, which ignores both mind and matter and confines its attention to phenomena—tendencies the influence of which you are all certain to feel and to which some of you are not unlikely to succumb.

Most of you, I presume, have come here with some ideal conceptions, vastly varied, no doubt, in colour and intensity, but still dominating you more or less. You have passed, in all likelihood, through the petty scepticisms that come like exanthems in boyhood and youth. You have revolted against some old and worn-out superstitions and have emancipated yourselves from dogmatic dictation. But you have still retained a belief in something in the universe higher and greater than man; in humanist as superior to utilitarian aims; in a Divine Mind behind Nature; in the exalted destiny of the human soul; in a principle in the mind distinguishing between the noble and the base, the false and the true, the fair and the ugly, the saintly and the self-indulgent; and in the majesty of will or in the truths of a revealed religion. With many of you in whom they are hereditarily ingrained or deeply engraven by educational piety your ideals, whatever they be, will remain intact and secure, but with others not thus protected they will not improbably be shaken on their pedestal, pitched into the limbo of indifference, or thrown down and broken altogether by the intellectual commotions that accompany your medical studies.

It is human bodies with which you are in your medical studies concerned. You dissect the cadaver, brood on its parts, tease out its tissues, and handle its organs until the men and women whom you meet in the streets become to you mere animated corpses. You plunge into physiology and find that it is a complex of physical, chemical, mechanical, and electrical forces that has to engage your attention, and that these have to be measured by instruments of precision of various kinds. You proceed to medicine and discover that it rests entirely on observation and experiment and is a system of truths capable of demonstration, prediction, and verification. You enter upon practice and go about with the ophthalmoscope at your eye, the stethoscope at your ear, the thermometer in your hand, and a pocketful of drugs, and you almost fancy that you can create life,

for in a body that is practically dead you are able by artificial respiration to relume the vital spark. You are in your medical studies introduced into a vast circle of empirical knowledge, in the whole scope of which—so hide-bound by law, so closely packed with facts is it—there seems to be no room for any ideal. As you advance in these studies your range of vision is apt to become more and more restricted to what is purely physical and material. Your teachers can supply no corrective to the materialising agencies which will operate upon you in the laboratories and hospitals. The increasing specialisation which the rapid growth of medical knowledge has brought about necessitates a far greater limitation of view than was formerly customary. Our medical professors half a century ago indulged in large and comprehensive generalisations; but to-day they have to confine themselves to small corners of the field of science and they have no need to oversee it all and define its frontiers. The absence from their lectures or treatises of all reference to the supernatural or metaphysical is only a consequence of the attitude which they are obliged to assume and no proof that they deny it.

But if your local teachers supply you with no antidote to the materialistic virus, the great catholic teachers to whom all who are interested in medical and biological science are obliged sooner or later to turn will inject it into your veins with tenfold virulence. Herbert Spencer is certainly responsible for a widespread diffusion of materialism. The splendid cogency of his argument that the whole procession of phenomena in the universe, the vast array of nebula and star, of sun and planet, of planet and moon, of rock and crystal, of plant and animal, is deducible as a physical and mathematical corollary from the simple fact that the quantity of force in the universe is fixed and unchanging and that it exists under the antagonistic forms of attraction and repulsion, dazzles the intellect and disposes to the purblind acceptance of his deliverances on all other subjects. And thus it is, perhaps, that his theories as to the evolution of mind, which notwithstanding his admission of an Unknowable as a necessary datum of consciousness, are pure and undiluted materialism, have obtained such ready currency. He insists that mind arises out of the molecular vibrations of matter, just as do light, heat, and electricity, and that the only difference between the commonest sensation and the most transcendent emotion lies in the number and complexity of the molecular vibrations of nerve substance. He does this with a subtlety and ingenuity that almost inevitably command for his propositions the assent of those whose daily experiences impress them with the constant and intimate connexion between brain states and mental manifestations, and so his philosophy has dashed to pieces the ideals of many medical postulants. But if Herbert Spencer has done much to scatter broadcast materialistic ideas in medical circles Huxley has done more, for in spite of his repudiation of the title "materialist" as a reflection on his agnostic orthodoxy there are few recent writers who have better deserved the designation. He invariably leans towards the primacy of the physical side in phenomena. He has said that the history of science has "in all ages meant, and now means more than ever, the extension of the province of what we call matter and causation, and the concomitant gradual banishment from the region of thought of what we call spirit and spontaneity." He has taught that molecular changes in the brain are the causes of all states of consciousness. Volitions, he affirms, do not enter into the chain of causation at all, voluntary acts being as purely mechanical as reflex action. High thinking in his alembic turns out to be merely increased resistance and friction in certain nerve circuits. He has reduced our species to conscious automata. Consciousness according to him is a collateral product of the working of the organism and cannot under any circumstances in man or in brutes be the cause of any change in the motion of the matter of the organism. With a matchless power of lucid exposition, with relentless logic, he has pressed home these views, and the weight of his authority as a scientific investigator added to the charm of their simplicity and roundness have given them potency and popularity and helped them to swell that great tide of materialistic thought which surges through our medical schools to-day and sweeps away many precious and ennobling ideals.

As I have already hinted, the materialistic tendencies of the day, dispersed everywhere but focussed in our medical schools, have not, even in them, by any means undisputed dominion. They are resisted by those who are by constitution or training fortified against them or who by wrestling with them have overcome them. And those who escape them are by no means the weaklings of the flock. It would not be difficult to quote a long list of truly eminent members of our profession, alive and dead, who have repudiated materialism and all its ways. And in the fold of science generally some of the most conspicuous figures are those of men who have been loyal to ideals. Speaking only a few weeks ago Sir John Lubbock denied that there is any antagonism between the discoveries of science and religious truth and mentioned that the four great men of science whom he had helped to carry to their last resting-place in Westminster Abbey—Lyell, Herschell, Spottiswoode, and Darwin—had all done something to promote the cause of true religion.

The ways by which materialism is avoided and faith reconciled with science are many and various. Sometimes it is not reconciliation but only cohabitation which is arrived at. Faraday kept his faith and his science firmly locked up in two different compartments of his mind and allowed no communication between them, so that his science was not restrained by his faith or his faith crippled by his science. Cuvier appears to have done much the same thing and to have been not less daring than devout. But for most men such a separation is impossible. Their faith and their science are indivisible and interfuse each other. Finally they must either dwell together in happy harmony or the one must suppress the other or even strangle and expel it altogether.

The victory of science over faith is indisputably sometimes the advent of peace. There are men with minds so constituted that they can recline at ease on a cold and stony materialism or find satisfaction in an outlook of blank know-nothingness. There are others, again—and they are many—to whom an expectant attitude affords composure. Concluding that the faculties of man in his present stage of evolution, with his limited number of senses and their restricted swing of action, although equal to the practical problems of life, are incompetent to explain the nature of things, they are content to await what shall be revealed hereafter. Entertaining preliminary hypotheses of all kinds, whether derived from Spencer or Hegel, Kant or Comte, Emerson or Schopenhauer, Buckle or Newman, they reserve judgment, taking the universe *ad avizandum* and wholly busying themselves in the reality that lies around them. But this attitude of mind and the declared materialistic attitude even when they secure complacency are seldom reached without pain and tribulation, while to a large majority of those who embrace it materialism is no haven of rest, but a rocky and wreck-strewn shore. To most men it is an anguish to be compelled by their fealty to truth to abandon their old and long-cherished hopes and beliefs; and if you wish to contemplate moving pictures of that tragic epoch in a man's life you cannot do better than turn to that chapter, "The Everlasting No," in Carlyle's "Sartor Resartus," where he shows "the foredone soul, bereft of faith, drowning slowly in quagmires of despair"; to Goethe's description of the same black phase of nightmare in his own pilgrimage, when he determined to end it all by suicide from which only a happy accident saved him; to Tolstoi's confession of the dark and ominous doubts which invaded him, bringing his life, as it were, to a sudden stop and leaving him long trembling on the very verge of the precipice of self-destruction; or to Dr. Beattie Crozier's powerful sketch of the heaviness and misery which the perusal of Herbert Spencer when he was a medical student brought upon him. The last-named writer, a member of our profession who, as members of our profession have at all times done, is to-day taking a brilliant part in philosophical discussion, who in analytical skill is only inferior to Spencer, whom in intuition and literary style he excels, has thus described what one volume of "The Principles of Psychology" did for him: "It blotted out my ideal. My mind, bereaved of what had been its life, settled into a deep and what for a year or two threatened to be a permanent intellectual gloom. ..... Wherever I looked the bright landscape of life turned itself into a desert, around and about which I wandered as in a dream, ever and again to wake up and ask myself in a moan of bereavement and despair, Where is now that bright ideal of life which encompassed me in the days when, with my philosophic friend, I walked radiant by the sweet-smelling pines by the river's bank as in the groves of Academe?"

The four great men to whom I have referred struggled up

again by different routes of ascent from "The Everlasting No" to new and diverse pinnacles of The Everlasting Yea. Their throes were Titanic, but vast multitudes in a minor degree participate in them, for most thinking men have at one stage in their growth to encounter the world-problem and if they cannot solve it they have to endure pains and penalties. Do what they may they cannot escape the question, What is the meaning, the nature, the object, the destiny of human life—the whence, the where, the whither of us poor mortals? And unless they can brush that question aside or find an answer to it that will satisfy the needs of their individual hearts and minds they will lead a maimed existence, be haunted by melancholy, tortured by an unappeased thirst, vexed by the emptiness of success, or overwhelmed by the finality of failure. The loss of the ideal is a personal calamity. "That way madness lies," as those engaged in my special department of practice are not seldom made aware; and the loss of the ideal is inevitable if no solution of the world-problem can be arrived at or if that solution be materialism. For materialism reduces all things to the pull of opposing atoms. Under its interpretation intellect is the activity of nerve-cells, immortality is a delusion, virtue, honour, and duty are forms of selfishness, and heroism becomes a kind of disease. When the stewardess of the *Stella*—glorious woman!—took off her lifebelt and gave it to an affrighted being beside her and bravely sank, commending her soul to God, her act was not conducive to the preservation of the individual or the species. It was an expression, we are told, of the abnormal over-functioning of a certain portion of her brain. Does not the heart sink and the gorge rise at such revolting nonsense?

Of course, the sufferings, the forfeits, the penalties attached to materialism, agnosticism, or any other solution of the world-problem must not deter from its acceptance if it appeals to us as truth. There is intellectual as well as moral heroism, and that at any cost seeks out and embraces the eternal verities and clings to them with all their asperities, eschewing that which is false notwithstanding its seductive smoothness. But the momentous consequences which hinge on our choice of a solution of the world-problem may well hold us back from any rash decision and encourage us to thorough examination. To drift into materialism from indolent acquiescence or callous sensuousness, or out of deference to scientific authority, to adopt it in defiance or bravado, to rest in it without testing its credentials again and again in the new lights that the changing years bring to us, is the height of folly. To let the ideal slip from us by clutching it loosely or by neglecting to supply it with the necessaries of its life is to sacrifice our most precious birthright. I cannot help thinking that in our medical tribunals we are too apt to allow judgment to go in favour of materialism by default, and to let blatant assertion, like that of the French General Staff at Rennes, pass for proof. The battle is not ended, it is scarcely begun; and if I discern the signs of the times aright there are hard knocks in store for materialism, naturalism, and agnosticism. It is not for me in the time that remains to me to combat these three formidable giants who are always lying in wait to devour medical students, Materialism, Naturalism, and Agnosticism. I should be confounded in the attempt. I dare not even stop to indicate all their vulnerable points, for you would run away, not from the giants but from my long-winded demonstration. What I have to say is simply an exhortation to hold fast as your sure refuge by Idealism, which, in some shape or another and however smothered up, still dwells in each of you, and with that exhortation I would associate suggestion that the assumptions of science which exclude an idealistic view of the world, as well as the prepossessions against anything beyond solid facts and their material explanations which your studies may have engendered in your minds, are still open to doubt and refutation.

Let me remind you, then, that wide as the sphere of science is it is still limited in all directions. On no side does it begin at the beginning or end at the end, for, as Max Müller has said, "Our minds are not so made as to grasp either beginnings or endings." Everywhere it is possible to leave the confines of science behind and to come on unexplored regions beyond the pale, where the Ideal is supreme, and where poets and philosophers may expatiate at large. The range of the senses is, as you know, a narrow one. Beyond the red and the violet of the spectrum are rays of wave-lengths to which the retina does not respond. Hearing holds good only from 30 vibrations up to 40,000 vibrations a second; and smell, taste, and touch go but a little way in revealing to us the properties of matter. It is certain that there is an uncircumscribed physical universe of which we have no direct cognisance but in which we must believe; and it is equally certain that in the mental universe there are boundless areas beyond our apprehension which may be appropriately designated by contradictory terms as our entrance to them is on every side barred by self-contradiction in thought. We can conceive neither of boundless space nor of space without bounds nor of an ultimate atom that is not both divisible and indivisible at one and the same time. It is certain that what we call our intellect rests on belief and not on knowledge. Physical science can do nothing to demonstrate the existence of an outer material world, which we believe in nevertheless, although our knowledge of it is derived from certain affections of the senses. Physical science can never prove to us the existence of mind in our fellow-men, and yet that is one of our most rooted convictions; and physical science is equally incapable of substantiating that the quantity of force in the universe is fixed—the first principle without which science is impossible, and which we have to take on trust. In these and in other instances which might be adduced it is seen that our whole mental fabric is built up on beliefs lying deeper than science, in regions into which, with all its modern acuteness and instrumental aids, it cannot penetrate. These regions are called metempirical, but it is not on their shadowy immensities I wish for the moment to touch, but on certain unfathomable chasms that yawn well within the bounds of recognised science and the existence of which is inconsistent with the materialistic hypothesis.

Firstly, there is the chasm between the organic and the inorganic. Astronomical physics bring us down gently, as has been said, from the incandescent gas of a nebula to this round earth, but when we begin to examine the earth's surface we are pulled up with a jolt at the cleft between the lifeless and the living. There is no tenable physical theory of the origin of life, which in our experience never arises except through the mediation of life already existing. Abiogenisis is an exploded myth. Virchow's phrase, "Omnis cellula e cellula," is an axiom in biology. The volumes of Herbert Spencer's philosophy which should have traced out the connexion between inorganic and organic evolution are, strange to say, still wanting. Darwin never entertained the notion of a mechanical derivation of life, but wrote: "It is mere rubbish thinking at present of the origin of life; one might as well think of the origin of matter"; and Lord Kelvin, notwithstanding what has been called his "forlorn hypothesis" of the meteorite, a skin-graft from another world, has declared that "the only contribution of dynamics to theoretical biology is absolute negation of the automatic origin of life."

Secondly, there is the chasm between the physical and the vital, for if the origin of life is wrapped in obscurity so is its maintenance. Physiology has, in its materialistic fervour, vaunted itself on having banished vitalism and established the identity of all vegetable and animal functions with physical forces. In 1889 Sir John Burdon Sanderson, in his address to the British Association, declared that "the word vital, as distinctive of physiological processes, must now be abandoned altogether," but in view of recent researches I question whether he would to-day repeat that statement. With reference to absorption—which is the chief function of the alimentary mucous membrane and on which nutrition depends—it was taught not so long ago that the processes of diffusion, osmosis, and filtration afforded a complete explanation of it; but since more has been learnt about the powers of cells these crude physical theories have broken down and it is now admitted that while absorption is aided by physical processes like osmosis it is at bottom the work of cells with a selective power peculiar to their living tissue and ordered and governed by laws which must be called vital. In connexion with secretion and excretion or the extrusion of waste products and the deportment of certain tissues on bacterial invasion there are features which we cannot on mere physical principles understand. In several branches of physiology a return to vitalism or a belief in a kind of energy not physical, chemical, or electrical, guiding and controlling the various forms of motor and molecular energy may be noted, while our leading physicists tell us that to apply physical methods to biological problems is a gigantic extrapolation. In spite of chemical similarity living and non-living substances cannot be identified with each

other, but can be distinguished by differences not only physiological but physical. The use of dyes in our histological investigations has shown this and the latest observations on the ganglion cells have proved that, apart from staining, differences between living and no longer living parts are visible. The once-favoured theory that the human organism is a mere machine or steam-engine *in excelsis* has been discarded. "The living substance is entirely distinguished from the dead machine," says Professor Strassburger of Jena, quoted by Professor Ward, "by its ability to provide itself with the energy needful for its work, to set itself in motion, to keep itself going, to repair itself within certain limits, and, above all, by the fact that it constructs itself. In short, the organism, in contrast to the dead machine, is a living machine, one that does not depend on external impulses for its movements, one that regulates its own course and continues going as long as the environment will allow." The organism is not an individual but a social organism made up of regions, organs, tissues, and ultimately of a congeries of cells. It is not one but many mechanisms combined. Yes, but where does the social arrangement come in? How do the secondary mechanisms come to be assembled together, not promiscuously but in a well-ordered hierarchy? Under what direction do they coöperate and how do progress and development in them admit of any mechanical explanation?

Thirdly, there is a chasm, the widest of all and the most fatal to materialism, between mind and matter. And it is just this chasm which as young medical scientists you are most likely to overlook, for the absolute dependence of the mind upon the brain is a presupposition of much of your work and is obtruded on your attention in your clinical, physiological, and pathological studies. Even those of you who are only entering on your curriculum will be prepared to affirm that thought is a function of the cerebral cortex, for the accredited proofs of that proposition are patent to all. The intelligence of animals is on the whole proportionate to the size and differentiation of their nerve-centres. In the different races of mankind a correspondence is observed between mental power and brain bulk and elaboration. In the individual man from birth to maturity the mind evolves as the brain grows, and it fails when that organ falls into senile decay. With a small or deformed brain there goes idiocy; with a large and well-balanced one there goes commanding intellect. When the vital activity of the brain is diminished in sleep the mind faintly flickers in dreams. When the blood-supply of the brain is cut off the mind goes out like the flame of a lamp without oil. When the brain is poisoned by bad blood, loaded with narcotics or toxins, the mind wavers and splutters in its socket in delirium. After a blow on the head causing concussion of the brain mental manifestations are temporarily suspended; and with organic lesions of the brain, such as hæmorrhagic clots or tumours, there is permanent lameness and weakness of the mind. And, more than that, there is not only a general but a detailed correspondence between mind and brain, for various kinds of thinking seem to be functions of different portions of the brain. If one occipital lobe of the brain of an animal be removed there will be blindness of one half of the retina of each eye with inability to see objects in one half of the field of vision, or the condition called hemianopia; and if both occipital lobes be extirpated there will be total blindness; whereas if the occipital lobes be stimulated by electricity movements will arise such as are associated with the use of the eyes in vision. It is thus shown that visual sensations are located in the occipital lobes, and by similar experimental methods, aided by pathological observations, it is made in the highest degree probable that auditory sensations are located in the superior temporo-sphenoidal convolution, tactile sensibility in the limbic lobe, and speech in the third left frontal or Broca's convolution.

All this sounds like materialism with a vengeance. And yet there is not a physiologist among us who will say that the dependence of mind on brain is the same kind of dependence which exists between function and organ in other instances. The brain produces creatin, lecithin, cholesterin, and carbonic dioxide, but it does not produce mind in the same sense, and Cabanis's mischievous epigram, "The brain secretes thought as the liver secretes bile," is false and misleading. The most material theory of mind-production now fashionable may be stated thus: Neural currents set up by external impacts travel up the nerves and through the ganglia, and reach the cortical cells of the hemispheres, where they find a set of nerves and cells not so accustomed to this special change. The currents encounter resistance, and in overcoming this they cause the cells to glow like the carbon filament in an incandescent lamp. The white heating of the cells we call consciousness; consciousness, in short, is nerve-glow. But this is merely to shirk the materialistic difficulty, to take shelter under a metaphor, to blink the chasm which gapes huge and impassable as ever. Of nerve-cells at a white heat or in a glow we know nothing; but if by these terms are meant the molecular changes in nerve-cells when functionally active it may be pointed out that these changes are purely physical, and that they are not transmuted into consciousness by giving them figurative appellations. Neural facts we know and mental facts we know, but there is no bridge between them, and they cannot be identified any more than can a telegraph wire with the meaning of the message it transmits. We cannot conceive of mind as a mode of motion. An idea and a vibration in nerve molecules are as essentially different as the multiplication table and the slate on which it is jotted down, and have nothing in common. The series of neural events that goes on in the brain, being physical, is already closed and complete within itself, each neural state being wholly the effect of the neural state immediately preceding it, and entirely the cause of that directly following, and to assume that a neural event could become a mental one would be to violate the master generalisation of modern science—the conservation of energy—by holding that energy could appear or disappear in one form without at once reappearing or disappearing in another to a precisely equivalent amount. Brain changes cannot be transformed into sensations, or volitions into brain-changes, without a breach of physical continuity. Psychological analysis pushed never so far will bring us no nearer to molecular motions, and however much we may lay bare the brain thought will remain intangible and inscrutable as before. No man has seen thought at any time and no man has seen neural processes. It is only in their effects that we can follow them from point to point—that is to say, in sensation and movement. Thus it is that Du Bois-Reymond has said that it is hopeless to resolve thought into a physiological process, and that Wundt has delivered himself to the effect that the action of mind on matter, if it existed, would be in the nature of a miracle.

Thus it is that modern science has repudiated crude materialism as regards the relations of mind and brain and has fallen back on an agnostic theory called "psycho-physical parallelism," which is now in the ascendant. According to this theory it is admittedly vain to attempt to resolve thought into physical changes. All that can be done is to trace co-existence and succession between facts of mind and facts of body. We have, on the one hand, a series of physical changes or brain processes; on the other a series of psychical changes or mind processes, each undulating at the rate of 10 per second—the two clocks of Leibnitz without intercommunication, but so constructed that they perfectly accord in action. These two are utterly disparate and incommensurable and cannot be identified, and the relation between them is purely one of concomitance—of concomitance, however, of the most detailed and exact kind. The correspondence between neural and conscious disturbances is entire as regards complexity, intensity, rhythm, and time-order, and amounts to minute and undeviating parallelism—a pre-established harmony, beyond which we cannot go. There is, it is alleged, a duality of mind and matter, a duality in which neither is "afore or after other, neither greater or less than another." This theory avoids a coarse and shallow materialism by propounding an enigma, but in spite of its professions of the equality of the psychical changes and their physical counterparts it very soon appears that those who adopt it give precedence to matter. It lands us back in the doctrine of conscious automatism and represents mental manifestations as epiphenomena or collateral products of brain processes, like the shadows of a moving train, mere symbols in consciousness of changes that are going on automatically in the organism. Grasped and applied it takes the zest out of life just as much as pronounced materialism. It postulates a rigorous concatenation of all physical changes into one vast undeviating process which knows nothing of spontaneity, worth, or purpose, to which mind is secondary and episodic, in which there is only uniformity of space and time and persistence of energy. It owes its rise, of course, to the upholders of the mechanical theory and not to the physiologists and pathologists, for they have generally

inclined to the opinion that the connexion between mind and brain is one of inter-action of some sort. To them parallelism has seemed a highly artificial hypothesis, an everlasting dilemma, unscientific, even more inconceivable than inter-action, for they have failed to see why ignorance of the connecting links between physical and psychical states should be a ground for asserting their absolute separateness and have remembered that science would have been but backward indeed had the same principle been applied in other cases of co-existence. They have preferred to believe that there must be an unknown medium connecting the two, for invariable concomitance and absolute causal independence seem incompatible positions.

[Sir James Crichton-Browne here reviewed at considerable length the philosophical objections to psycho-physical parallelism and cerebralistic metabolism, supporting his argument by references to the Gifford Lectures of Professor Ward and to the writings of Professor James of Harvard University and Professor Münsterberg. He continued:]

It is the conception of the Ideal, standing as the representative of a Power outside the world and the mind—something which is in the mind but not of it—that is perhaps the most important distinction between man and the lower creation, besides being at once the bedrock and cement of our civilisation, for deprived of it we should before long fall back on Nietzsche's primal animal power and become a herd of "blond beasts," as he has called mankind.

I trust that nothing that I have said this afternoon will be regarded as an incitement to the medical students of Owens College to neglect their proper work or as a lure to draw them into the cloudy regions of abstruse philosophical speculation. That would be an ill service done to them. It is concentration and practice which perfect function, and the function of a medical man is of such a nature that intense concentration and diligent practice are necessary if it is to be performed with acceptance and success. Your calling permits of no divided allegiance. Medicine as an art consists no longer of an almost stationary body of established principles which have to be applied day after day to the same or similar cases. It moves, it expands, it modifies its methods from hour to hour in conformity with the new discoveries which are flashed upon us, the new tools which are put in our hands. Medicine as a science is so vast and progressive that the most capacious mind and the longest lifetime cannot embrace it all, while persistent, patient, earnest investigation is demanded of anyone who would open up new ground even in the smallest of the special allotments into which it is split up. You cannot be too devoted in your attentions to the mistress of your choice and I would be the last to entice you to interrupt the voyage on which you have embarked by tacking into unknown and treacherous seas. And if I were foolish enough to do so my siren voice would be of little avail, for there are straits ahead of you—the examination straits—which will prevent any serious deviation from your course. But as you voyage along cosmic thoughts and dialectical difficulties, misgivings, perplexities, and hopes and fears must come; reflective epiphenomena will illuminate or shadow the visible phenomena which will form your daily food and it will be impossible for you altogether to avoid the considerations to which I have been referring; and in my judgment much of your happiness and usefulness in life must depend on the manner in which you meet them, on your steadfastness and intrepidity in passing through the materialistic Slough of Despond and on your coming out of it still holding aloft the Ideal.

How is the Ideal, whether it is innately in the mind or has been won by sore travail, to be fostered and nourished and kept alive? By all those observances and ordinances which the wisdom of ages has consecrated and which in these hurried and indifferent days we are too apt to neglect. By the assumption of an attitude of reverence and sympathy which will incline our ear to the whisperings of the Infinite and afford us glimpses of the inner impulses by which other men shape their lives. By the practice of that self-renunciation for which our profession affords the finest scope, for in ministering to the wants of others, even at the sacrifice of our own, we mount to blessedness. Scepticism, unbelief, and deadness to the Ideal are sometimes the outcome of an overweening egotism of isolation and an exaggerated notion of one's own importance, and they are to be corrected by a broad survey of humanity, of the poor and toiling multitudes to whom faith in some shape still makes their meagre existence good and palatable and full of meaning. And for this broad survey your profession in its practical aspects will afford you abundant opportunities, thus in some degree making amends for the epicurean leaven of its purely scientific study. You will witness much of tragedy and pathos in humble homes. You will contract an affectionate esteem for lowly toil and for the patient endurance and devotion of the poor without sacrificing your respect for the many noble qualities that mingle with the frivolities and follies of the well-born and affluent classes.

In many trivial ways—trivial apparently, but not really unimportant at many points in the career of the medical student—idealism may be encouraged. Take our dissecting rooms, for example. In my earliest recollections of them they were odious, squalid places. Nowadays an architectural sense of fitness controls their construction and they have become spacious, well-ventilated, and well-lighted; but in many of them there are long whitewashed walls, unbefitting a building dedicated to a noble purpose. These walls clamour for decoration. How easy were it at small cost, by plaster-of-Paris friezes, reliefs, and medallions, to keep in perpetual remembrance of those who work in these rooms the beauty, grace, and dignity of the human form.

Familiar relations with Nature is life-blood to the Ideal. The tasks of the medical student are of a kind that make this intercourse peculiarly desirable for him, but the conditions of his lot are such, especially when his school is in the middle of a big city, that he can but sparingly indulge in it. The leisure which he can command is dedicated to the service of the motor rather than the receptive centres. Football, cricket, hockey, lawn-tennis, gymnastics, the bicycle, make exacting claims on him—and I would not say a word to disparage the benefit of these salutary exercises—but at the same time the calls of the perceptive faculties should not be ignored, nor the wholesome and soothing effects of the contemplation of natural scenery be overlooked. A sense of joy and tranquillity which is not otherwise to be secured does flow in during a sojourn in the country with open heart and eyes, and communion with our mother-earth in all her changing moods and garments is not only a sedative to irritable nerves and a restorative to jaded powers, but a stimulant to idealism. To turn from the scalpel and the test tube to "the light of setting suns, the round ocean, and the living air" is to get away from dead facts to breathing ideals, to approach, to invite, often to realise, the sublime conception of one Divine Spirit interpenetrating the world, shining resplendent in the mind of man and twinkling in the wayside flower.

But unless richly gifted with poetic faculty we are all the better in our study of nature, as in the study of anatomy, by having our professor or interpreter with us. He removes obstacles, suggests analogies, and quickens insight. The poet is the interpreter of nature and in our poets we have guides more or less trustworthy in our wanderings in her demesne, for if they are true poets they transcend scientific analysis and not merely put forth beautiful visions but anticipate and create. The great masters of poetic literature should not, therefore, be unknown to the medical student who aims at the Ideal, of which also art and music and the drama may be powerful auxiliaries. Excursions into the pages of history will also help him to an inner understanding of the world and disclose to him in ages, nations, and social groups the operation of qualities and will-influences, necessarily involving ideal governance.

I can express no better wish for you, gentlemen, than that, while immersed in the realities of life, you may be rewarded in your quest of the Ideal, for it is a talisman that once seized and pressed to the breast will enable you to say to Pessimism, "Avaunt!" and to Beneficence, "Open, sesame!" Negation is a barren wilderness, Belief a teeming garden. "To yield reasonable satisfaction to the religious sentiment in man," exclaimed Tyndall, "is the problem of problems of the hour." Lord Bacon said that he would rather believe all the fables of the Talmud or of the Koran than deny the being of the Universal Mind; and Newton concluded his "Principia" with these words: "The whole diversity of natural things can have arisen from nothing but the ideas and will of one necessarily existing Being who is always and everywhere, God, supreme, infinite, omnipotent, universal, absolutely perfect."

"Our little systems have their day;
They have their day and cease to be:
They are but broken lights of Thee,
And Thou, O Lord, art more than they.

"We have but faith: we cannot know,
For knowledge is of things we see;
And yet we trust it comes from Thee,
A beam in darkness; let it grow."

An Introductory Address

ON

THE TWO DISCIPLINES IN EDUCATION.

Delivered at the Opening of the Medical Session, Mason University College, Birmingham, on Oct. 2nd, 1899,

BY SIR WILLIAM T. GAIRDNER, K.C.B., M.D. EDIN., LL.D., F.R.S.,

PROFESSOR OF MEDICINE IN THE UNIVERSITY OF GLASGOW.

GENTLEMEN,—Not very many weeks ago, I had the opportunity of spending a long summer day in the country with a friend who, if I were to name him to you, would be recognised by many here as one of the foremost men and one of the greatest authorities in medical science; and along with this very old friend we had one of the very foremost physicians of the American continent, a guest for the day like myself in a most beautiful country within easy hail of London amid the downs of Surrey. The occasion was one which might have led to discussion of some of the points which I intend dealing with in the present address. I do not remember that there was much, if any, discussion of that kind among us, and yet I have something like an instinct that you may take what I shall deliver to you as being substantially in harmony with the views and opinions of these eminent colleagues. One thing, however, I may here mention as having taken some hold upon my own mind—that of a life-long teacher of medicine. It was a lecture given by our host in the afternoon to a mixed audience of all ages and ranks within an "educational museum" that owes its existence in that sequestered village to the energy and restless fertility of resource that characterise my friend alike in his professional career and in his relaxations—if so they may be called. This lecture was one of several carried on at intervals during the summer and autumn under the auspices of a local committee in whom the museum is vested as a trust. One thing particularly struck me in the very commencement of this lecture. It had been announced that the first 20 minutes or half-hour would be given to some common object or objects freshly provided while the remainder of the discourse was to be upon "Whales." In this first portion the keynote, as it were, was struck by presenting to an intelligent little maiden of perhaps 12 years old sitting near the lecturer a severed branch of a fir tree just imported from the adjoining woods and asking her—"What is that brown object growing in the cleft of the branch there?" "A pine cone." "No, it is not a pine cone, though it may look a little like it. You see it has some of the leaves growing out of it. Now, take this knife and cut what you supposed to be a cone down the middle." This cut being performed revealed an insect inhabiting the woody growth, and this led to a few minutes' discourse on these animal parasites, or galls, in their more general relations. Then followed an exhibition of potato blooms, so recently recovered in our fields after many years of almost entire absence, with some remarks on the possible causes of these changes; but, as I have said, the details of the lecture being of less consequence for my present purpose than the method of it, I will pass over what was said upon this subject. Interest being thus thoroughly aroused alike among old and young hearers by this dealing with common objects the main subject of the lecture as announced was proceeded with and proved to be a most philosophical, though by no means abstract, discourse on dried specimens in the museum, of the structure of certain whales and their congeners the dolphins, narwhals, &c., following out the lessons to be derived from the modifications of the skeleton and the dental apparatus in different tribes of animals more or less resembling each other as viewed in the light of Darwinian principles by a thorough and experienced student of nature. It was a lecture which from plain and simple, very visible and very tangible, facts presented in the first instance objectively (to use a comparatively modern philosophic word) extended up to very general and somewhat recondite laws of Nature, but above all it was a lecture which had "Nature" for its groundwork and its basis, observation of Nature for its primary method, and which thus tended to quicken or educate in an equal degree the faculties of observation and those of reflection.

In the course of hearing this admirable exposition and noting at the same time the very vivid and unfeigned interest displayed in it by old and young alike I was led into some reflections which were not by any means new to me (as you will presently find), but which I have since thought might be turned to account as a fitting basis for the present address. Observe, once more, that it is the method and not the matter of this teaching on which I desire your attention to be fixed as students of medicine. It would be going too far, perhaps, to affirm that the method here in question is the exclusive method of medical science or of any other science. But it is, in a broad and general sense, the method of Science, as distinguished from Literature and Philosophy, which in days not very long past well-nigh monopolised the field of education and seemed to many generations of our ancestors to comprehend, if not to exhaust, all the available faculties of the human mind. My desire is not to disparage literature and philosophy, much less to insist upon these or any department of them being supplanted by newer methods in education, but to show that what I have already called the *objective* method has, and ought to have, a quite definite place in all education, from the infant school up to the university, and that to refuse or deny to it this proper place is practically to arrest the growth of certain faculties which are at least as important in the evolution of an educated human being as are those which have for ages been subjected to the disciplinary methods commonly called scholastic, inasmuch as these methods have had almost the undisputed possession of the schools and therefore of the minds trained in them. My argument will be, not that the scholastic discipline is bad of its kind, but that it is, or at least has been, defective; not that its results so far as attained were otherwise than most important and valuable, but that other results which should have grown up side by side with these and in perfectly harmonious association with them have been artificially withheld and denied the opportunities of development which they might have had and would have had in a complete and well-balanced educational system.

This complaint is not new. The late Professor Huxley, in the course of a long and busy life devoted in almost equal proportions to science and to controversy, omitted no opportunity of urging the claims in education of the kind of discipline here referred to. Moreover, in his lecture "On a Piece of Chalk" Huxley has left an illustration of the kind of wide scientific outlook that may be based even upon a very common object, and of the singular attractions which such an exposition may have—and ought to have—for all minds that have not been already fatally distorted by overmuch and exclusive training in book-lore, and the merest pedantry of current educational systems. And almost or quite a generation before Huxley, when, indeed, that brilliant and combative genius may have been (for aught I know) among the early entranced child-listeners at the Royal Institution, Michael Faraday was experimentally unfolding and expounding the "Chemistry of a Candle" to audiences which, although the simplicity of the treatment was such as to fascinate children in their Christmas holidays and was in the first instance intended for them, came to include also many of the most gifted statesmen, philosophers, and adult persons of social eminence in London.

These lectures at the Royal Institution by one who is confessedly one of the greatest scientific investigators of the present century were probably responsible in some degree for the first effective protest against the one-sidedness of the scholastic methods as then pursued; for in 1855, Faraday (although with characteristic modesty, he confessed himself to be "not an educated man") affirmed, in presence of Prince Albert and a large assembly of highly cultivated and socially notable persons, his clear conviction that the most highly educated minds in this country were often so entirely undisciplined in the merest elements of the knowledge of *things* as opposed to *words* and abstract ideas that these minds, even in mature age, remained impermeable to truths which to one with any scientific discipline at all were nearly axiomatic.

Faraday was not only assured by his own experience as a teacher that very young minds were open to receive and ready in apprehending the data and inferences resulting from well-conducted experiments, but he had also before

him the fact that in the most highly cultivated classes in English society persons were to be found on whom experimental and physical evidence failed to make any impression at all when brought into contact with an *a priori* conviction however foolish and absurd. The crude impostures of table-turning, spirit-rapping, and other quasi-supernatural manifestations were at this period in full flow of their fashionable popularity and Faraday was thus led to the conviction that there was a grave deficiency in the scholastic discipline of very high-born and distinguished Englishmen in his day, and in 1862 he obtained the opportunity of explaining and impressing this opinion more at large before the Public Schools Commission of that date.

When addressing the British Medical Association from the President's chair in Glasgow in 1888[1] with special reference to the demands of medical education I had occasion to cite this testimony of Faraday at some length with the view of showing that although some response had even then been made to his modest representations, supported as they were generally by the Public Schools Commission already referred to and still further by a later Commission on Scientific Instruction in Public and Endowed Schools in 1875, there was still much to be done before the lessons read to the first of these Royal Commissions by this great master in science could be said to have had their just effect. Faraday was himself fully aware of the difficulties, and even dangers, of prematurely urging, or rather forcing, the claims of science-teaching, and no one could be less open than he to the reproach of having made revolutionary proposals in favour of science to the detriment of the older and more established scholastic discipline. Others were no doubt much more impulsive, or less restrained, or less unwilling, than he was, speaking always, as he did, in the character of one who was "not an educated man," to carry war into the camp of the humanists. In the admirable Romanes lecture recently published by my former colleague, Professor Jebb,[2] I find generally that the "sixties"—i.e., the years immediately following the report of the Public Schools Commission—are referred to as being the critical moment, "a moment in this century when the attack upon the humanities was somewhat formidable." It is very satisfactory to note that as the result of his whole investigation of the subject Professor Jebb considers that the humanities have successfully weathered this storm, and are now, towards the close of the century, in a stronger and more secure position than they were before. "In the sixties," he writes (p. 35), "considering the strength of the attack both from without and from within, the position of humane studies was certainly more seriously imperilled than it had ever been before. ..... The danger was lest the powerful alliance between insurgent men of science and disaffected humanists, aided by the legions of Philistia, should force on a movement for imposing restrictions in a spirit altogether favourable to the new studies but unfriendly to the old, with the result that classical studies might be so narrowed, so hampered, so maimed, as to lose nearly all their educational virtue; and, after languishing for a time, might gradually die out of the schools." The other side of the question is stated not less candidly, though not, perhaps, with the same fulness of knowledge as regards scientific results and methods, by Professor Jebb, as follows (p. 37): "In the last 30 years the position of the humane letters relatively to other studies has been altered in several important respects. The study of the natural sciences is now firmly established in schools and universities; it can no longer be said that a haughty and exclusive humanism keeps them out of the educational field; indeed, there are not a few seats of learning where they hold a clear predominance. ..... This establishment of the modern studies is, so far as I have seen, viewed by humanists generally with cordial satisfaction. The spirit of humanism, indeed, wherever it is not a narrow pedantry, is one which welcomes every accession to the domain of sound knowledge. Meanwhile the claims of humanism itself, sifted by a period of controversy and illustrated by larger views of liberal education which now prevail, are usually stated with more discrimination than formerly and are more willingly and more widely acknowledged." This is surely a very satisfactory result, so far, of a controversy in which, as I have all along held and maintained, the two parties which have appeared as jealous rivals in the education field ought in reality to have been the best of friends; inasmuch as each of them was pursuing an end quite necessary in itself and one which, rightly understood, so far from excluding or being incongruous with the other ought rather to have been considered as giving it the support and assistance required in working out a common purpose—the all-round evolution or education of the faculties of the human mind. Partly by getting rid of certain pedantic and deeply ingrained defects of methods and partly by the development of quite new kinds of interest in the old and traditional studies the classical and other pursuits which constitute humanism have been strengthened rather than weakened by the intrusion of the new or more modern elements in education or, as Professor Jebb himself puts it (p. 34), "the humanistic studies have during this century become wider and more real. They have gradually been drawn out of a scholastic isolation and have been brought more and more into the general current of intellectual and literary interests. So far from losing strength or efficiency by ceasing to hold that more exclusive position which they occupied two or three centuries ago they have acquired a fresh vigour, a larger sphere of genuine activity and a place in the higher education which is more secure because the acceptance on which it rests is more intelligent."

It would be very unbecoming of me, gentlemen, to attempt to add to the force of these words, carefully set down as the result of a lifetime of experience and research by perhaps the greatest of our living humanists, a friend and (I am glad to recall the fact) an ex-colleague of my own in the University of Glasgow. But I may be permitted to remark that this hopeful and tolerant attitude of mind towards the changes in our educational policy which have been gradually taking place since the early "sixties" has been by no means universal and that the admission of the new methods and new forces of scientific training into our educational system has been very grudgingly and often inadequately conceded by those who, themselves trained on the older lines and being officially masters of the situation, have treated all innovations as hostile and their authors as enemies to culture instead of friends in disguise. Perhaps there may also have been a spirit of undue aggression and even contempt on the other side among those who have written and spoken as if the so-called "modern" studies were all-in-all in this nineteenth century of ours. To such over-zealous partisans the *apologia* of Professor Jebb may be commended as a temperate, careful, and, I need scarcely say, thoroughly well-informed historical and argumentative statement of the claims of "Humanism in Education." He attributes to Petrarch the honour of being the pioneer in "that great movement which we call the Renaissance." Dante, who was 39 years old when Petrarch was born in 1304 was the last great (and perhaps the greatest) figure of the middle ages "standing in the borderland between the darker ages and the revival, when he shows us a keen intellect and a sublime imagination moving within the limits and obedient to the forms of mediæval thought." "At the further verge of the Renaissance" (and at quite two centuries distance from Dante) we have "Erasmus, the life-long antagonist of the schoolmen, who makes so vivid to us the contrast between the intellectual atmosphere of scholasticism and that which the humane letters had created" (p. 6). And in these two centuries no one surely will now attempt to deny that the human mind awoke as from a slumber and entered on a new course of life and activity as a consequence of the Italian revival in the fourteenth century. "Petrarch's ideal of humanism," says Professor Jebb (p. 7), "as a discipline which aims at drawing out all the mental and moral faculties of man pervades the whole course of the Italian Renaissance."

That this ideal was not always attained; that it was "often obscured by affectations or puerilities," and "not seldom belied by evil living"—a kind of revived Paganism, in short—Professor Jebb frankly admits. But, all the same, it was "a real force, which comes out more or less in all the greater and nobler of the humanists." To all this, considered as the history of a great movement which began more than five hundred years ago and has had an abiding influence on the educational methods of all European countries, one can readily assent, while maintaining with Faraday, Huxley, and all the great scientific authorities of the present century that the discipline of humanism requires now to be supplemented by a newer and different discipline; and this not merely and not chiefly on account of the utilitarian value of the latter, but in obedience to the very principle attributed to Petrarch, that education, in the large

[1] The Physician as Naturalist (Glasgow, James Maclehose and Sons, 1889). *Vide* Abstract in THE LANCET, vol. ii., 1888, p. 243.
[2] Humanism in Education (Macmillan and Co., 1899).

and liberal sense of the word, should be such as to "draw out all the mental and moral faculties of man."

It is with a view to this distinction that I have ventured to give this address the title of "The Two Disciplines" and I hope to show you before I have done that without at all disparaging the first or older discipline, that of the Renaissance, commonly called Humanism, the second, which finds its objects in the physical facts of nature and its methods generally in those of what we call physical and natural science, must be firmly upheld and pressed home until it permeates every phase of education, as I said before, from the kindergarten school up to the university.

[Sir William Gairdner here said that the great men of the Italian Renaissance could not be expected to perceive that philosophy, literature, and mathematics did not by any means exhaust the cycle of human faculty. He continued:]

There was, however, at least one humanist of the latter period of the Renaissance who by a single brief epigrammatic phrase has managed to show that he, at all events, was not wholly insensible to the value of the discipline such as Faraday advocated and practised and such as we are now considering in this address. The Scaligers, though they bear a name of distinction, are not perhaps in the front ranks of the humanists, and certainly did not do much in their day for the advance of science. But the elder of the two, Julius Cæsar Scaliger, was trained as a physician and, I believe, practised as a physician, and in writing to another and perhaps more eminent physician, Jerome Cardan, somewhere about the year 1557, in the course of a long, desultory, and somewhat unreadable dissertation[3] —"De Subtilitate"—he has formulated the following very notable phrase, pointing, as he seems to think, to something wanted in the educational tendencies of his time. The special subject in view is Rock Alum and the fallacies current in respect to it; and I am certainly not here to allege that the reflections of Julius Cæsar Scaliger on Rock Alum have any kind of resemblance to those of Mr. Huxley on "A Piece of Chalk." But it is something surely to have compressed into seven brief words of Latin an idea so foreign to the humanism of the Renaissance as the following: *Rerum ipsarum cognitio vera e rebus ipsis.* If Julius Cæsar Scaliger had been Michael Faraday and if he had lived in the nineteenth century instead of the sixteenth he could hardly have given a more complete and condensed expression than we find in these words to the defect in the purely humanistic programme of education on which Faraday so strongly insisted in his evidence before the Royal Commission in 1862. What Faraday deplored as being defective in the most highly educated Englishmen of his day was the knowledge of *things* as opposed to *words and abstract ideas of things*—or, in the words of Scaliger, a true cognition of the things (or objects) themselves taken directly from the things themselves.

[Sir William Gairdner here quoted at some length Faraday's remarks on the observant faculties of children. He continued:]

The essential difference of the "Two Disciplines" (as I have ventured to call them by way of contrast) is that one is based upon ideas which have already received expression in human speech while the other is concerned chiefly with objects—that is, with phenomena occurring in external nature. The former discipline accordingly is (whatever else) necessarily preceded by and mainly founded on linguistic studies and keeps close to them throughout, inasmuch as language is not only the vehicle of ideas in respect of their intercommunication, but (as Max Müller has so cleverly put it) the λόγος is at once the word and the thought, the one being in a practical sense inseparable from the other. Hence the trend of this discipline is towards *humanism*—i.e., towards the discovery and highly elaborated study of the best examples alike of thought and of expression—the noblest and most inspired ideas of the most outstanding men clothed in the most appropriate and (if it may be so) beautiful, but at all events fitting and luminous, words. The men of the Renaissance found this kind of perfection in the literatures of Greece and of Rome and directed all their energies to the revival of these and to living over again and thinking over again the best ideas of classic antiquity.

Such, then, are the leading characteristics of what we may call, historically, the older, and until recently paramount, scholastic discipline, founded mainly on language and including in its widest range philosophy and mathematics, which are also as studies only to be compassed through verbal symbols and definitions underlying their whole argument. This discipline begins in the individual man with the actual A B C, or rather with the first spoken words of the child, and is methodised and expanded in the school and university either into humanism of the classic and Renaissance type or into some other variety of literary and philosophic evolution founded on this but more largely permeated by modern ideas. Having in view the contrast which I am about to present to you and also the large and comprehensive interpretation placed upon the word by Max Müller, I am disposed to indicate the whole of this discipline in one Greek word and to call it the discipline of λόγος.

But now let us revert for a moment to the other discipline which occupied our attention in the beginning of this address and which, instead of calling it by the ambitious title of the discipline of science (although it deserves to be so-called) I prefer now to consider under its simpler and more universal aspects as the discipline of φύσις—i.e., of nature and natural phenomena. I have already employed this expression for it in my former address, and have had occasion to point out that by a very ancient tradition embodied in the name *physician* the medical art and its professors of the higher order have been all along supposed (sometimes it is to be feared erroneously) to be specially imbued with this discipline, or at least to have a quite special interest in it as the only true method of medical science. It is, moreover, true, at least of Hippocrates, the father of Greek medicine, that he anticipated by some 2000 years the well-known expression of Francis Bacon by indicating the true position of the healer as being ὑπηρέτης φύσεως—the servant (or minister) of nature. And, if further evidence were required, the very foundations of what we now call biology, pursued in relation to the art of healing, came to be spoken of at a very ancient date as physiology—the doctrine or λόγος of φύσις—a designation which it has retained till our own day. There is thus a reasonably good traditional ground for the position in which we stand to-day—in this flourishing medical school of a nascent university—pleading for the more ample recognition of the discipline of φύσις in relation to general education.

It is perhaps worthy of note here that in the natural order of evolution of human faculty, as regards the individual, the discipline of φύσις is first, that of λόγος second. The latter commences with the first words spoken or apprehended by the infant, followed up in time by the A B C. But the A B C of φύσις begins in the cradle, in the very first hours of conscious life. The whole existence of the infant is a discipline—sometimes a painful, oftener a joyous one, in the wide school of natural phenomena. His very primordial instincts, the play of hands and feet, and lungs and voice, tutored and guided by experience, is a part of that natural discipline. To learn that fire burns and that water cools and cleanses; that iron is hard and heavy; that white wool is soft and light; that colours, sounds, tastes, and smells differ, and may mean good or evil, help or hindrance, in particular circumstances—these are the first steps in the discipline of φύσις, and are learned, as a rule, with great ease and confidence, though not without mistakes, from experience long before the A B C of the other discipline has begun to be thought of. In the admirable kindergarten schools of recent times, moreover, the discipline of φύσις is often attended to and aided by well-contrived efforts and experiments, increasing both knowledge and power without any sense of task, work, or fatigue of body or mind, and with the clearest proof of enjoyment on the part of the child. But as soon as the discipline of λόγος comes in, monopolising the attention and making drafts upon the intellect in the shape of memory and task work, the more natural discipline is apt to be thrown aside or even severely repressed, as being unprofitable in a scholastic sense. At the very least it fails to be methodised and expanded, and is not turned to account either in a scientific or any other direction, as the discipline of λόγος is when it carries off all the tangible rewards and in fact becomes exclusively what is called "education" on the lines of humanism, as we have just seen.

Fortunately for the human race, however, the discipline of φύσις is not confined to the schoolroom. The fisher learns a good deal of it in this commonest of sports in studying the habits of the *salmo fario* or even the minnows in the pool in childhood, and does not dignify what is so learned with the

[3] Exotericarum Exercitationum Liber xv., De Subtilitate, Exerc. 104, Sec. 6, "De Alumine Rochae." (I quote from the edition of Frankfort, 1612; but there are various editions from 1557 onwards.)

name of "science." The child addicted to bird-nesting, to the collection of flowers or of insects or of seaweeds or any other natural productions, acquires a hold thereby upon one or other corner of abounding "Nature" which may or may not be wisely cultivated. In every kind of sport, in almost every occupation pursued in the country, φύσις will have her votaries and, up to a certain point, successful students. A Gilbert White will indulge successfully his wonderful instinct for the observation of Nature in a quiet country parsonage, and will give us the "Natural History of Selborne." A Hugh Miller of Cromarty, combining a fine literary instinct for "humanism" with native scientific genius, will tell you years afterwards that the best part of his early education at the parish school was in the days when he "played the kip"—i.e., the truant—and devoted himself to long walks, taking in slowly the lessons which afterwards came out in "The Old Red Sandstone," and "The Testimony of the Rocks." But such brilliant aberrations of scholastic discipline only bring to mind the old Latin proverb—*Naturam expellas furcâ, tamen usque recurret.* Faraday's principle is that the great natural aptitude which most boys display for observation and experiment ought to be fostered and not hampered in a general scheme of education. No doubt the more recondite and abstruse generalisations of "science"—especially those which involve mathematical considerations—are beyond the scope of most boys at school, as they are of most men at a later period. But that is no reason for rejecting the discipline that arises from much more simple and easy demonstrations of φύσις. The lectures "On the Chemistry of a Candle" were of this description and they have been published. They were intended to show, and did show, that most important scientific generalisations resulting from experiment, and actually demonstrated in presence of a juvenile audience, could be made perfectly clear to the minds of school-children if presented in simple language by one who was a master in the subject.

It was at this point, however, that Faraday did not fail to foresee a difficulty which is even now, perhaps, not unlikely to endure for some time to come. Where are the masters to come from? In his own days he said, "I am often asked what men to recommend to spread a knowledge of natural physical things. I cannot recommend such; such men hardly exist at present. They want the A B C of science, not the X Y Z; they want the first elements." Faraday was well aware that a mere scheme for teaching "science" among a lot of what are commonly called "modern subjects" would not work. "It is not the matter," he said, "it is not the subject so much as the man. You want men who can teach science, and that class has to be created." Faraday was well aware (though he did not put it in these words) that "science" (so-called) might be taught out of a text-book, by rote, like anything else, and in such a way as not to have the smallest relation to the discipline of φύσις. The one essential point in that discipline, as distinguished from that of λόγος, is that the teaching must be real of its kind, founded on experiment and observation directly, and not doctrinal. It must be, in short, *rerum ipsarum cognitio vera e rebus ipsis.*

Now, in the actual teaching of a medical school in these days, gentlemen, we do our very best to make this kind of teaching yours as far as we can. You are taken into the dissecting-room and are expected to learn for yourselves (with assistance, of course) and to make yourselves practically familiar with the anatomy of the human body by the work of your own hands and senses. You have to undergo a similar discipline in the chemical and physical laboratory, and again in the physiological, and again in the pathological laboratories, and in many others. In the great practical departments you have your clinical work in the hospital which, if well managed by competent men, ought to be all a part of the discipline of φύσις and nothing else. A certain amount of dogmatic instruction by lectures and text-books, it is true, is absolutely indispensable, and I am not here to disparage it as I have practised it myself and have fully discussed elsewhere the need that still exists for it. But every systematic teacher of any eminence or effectiveness will tell you that if he were deprived of his practical service, his teaching, even as a systematic and more or less doctrinal lecturer, would inevitably degenerate. Here, again, therefore, *rerum ipsarum cognitio vera e rebus ipsis* is the true note of the discipline of φύσις. If general doctrines and conclusions must needs be taught they should be taught as much as possible in the light of instances, and the more these can be freshly provided and brought before the senses of the learner the better.

But the question which I am here to discuss to-day, though it is one of medical education, is also one of general education, as this will, I trust, come to be largely moulded and dominated by the Midland University of the future. Would not medical education be greatly improved and rendered easier as well as better in quality if the well-nigh lost discipline of φύσις were to be restored in some appreciable measure to the "grammar school"? Nay, would not the discipline of letters itself be improved were it to become a fundamental principle in all education, from first to last, that φύσις and λόγος should go hand in hand, each of them, of course, in a measure suitable to the advancing intellect and general growth in faculty of the child or adolescent? My argument is that this ideal, though perhaps difficult of complete attainment even now and for some time to come, is not impossible or yet in any sense injurious to the older discipline. I take it on the authority of Professor Jebb that the "attack" on "Humanism in Education" in the "sixties" has not been really disadvantageous to the latter, but rather, by purging humanistic studies of pedantic excrescences and methods, by drawing them out of a scholastic isolation and bringing them more into the general current of intellectual and literary interests, has actually strengthened their position by making them "wider and more real." Now, if all this be true as regards the higher education, why should not the same principles and with a like result prevail also in the grammar school? Observe that I purposely avoid the use of the words "science" or "scientific teaching" here, because we may be dealing (as Faraday said) only with the A B C and not with the X Y Z, and, further, because "science" may be crammed out of a text-book after a fashion that makes it no more a discipline in φύσις than are the rules of prosody or the genders of Latin nouns or the declining of Greek irregular verbs. But when the proper kind of teachers can be obtained (and that is the greatest difficulty now as it was in Faraday's time) the discipline of φύσις will make as great and as beneficent a change in the grammar school as it has already in part done in the universities and seats of the higher and more advanced learning.

On this point I find little to alter in the language which I employed in 1888, a few sentences of which you will perhaps excuse me for repeating, as I cannot find any other or better terms now for expressing the changes which I have in view. "Our present programme of school discipline is still too largely founded on the idea that at six or seven years old, as the case may be, a child may be withdrawn in a great measure from this strictly natural, wholesome, and all-round education of the faculties (i.e., that of babyhood and of kindergarten school) to have his nose buried for ten long years in books and papers and mental and other arithmetic till his little eyes become myopic and his little brain suffers a corresponding deformity. Athletic sports as a counterpoise are no doubt good and industrial training better in some cases, especially among the children of the poor; but they do not supply the missing link, which can only be found in the early discipline of φύσις, pursued in the very spirit of Faraday." To which I should only wish now to add, in parting with that great man on the present occasion, a few words from his evidence on this very point in reply to a question as to what he thought of the ordinary grammar school discipline in this respect. "It does not blunt the mind," he said, "but it gives the growing mind a certain habit, a certain willingness to accept general ideas of a literary kind and to say that all the rest is nonsense. ..... It takes up the general impression that a certain kind of knowledge, what I call the real knowledge, the knowledge of things, is of no importance."

I will close with a single remark which may have the effect, considering that my audience is chiefly concerned with medical education, of showing you that even the higher orders of schools are awakening to the demands that may be made upon them in this respect, and that some at least of the medical examining bodies are not indisposed to encourage this movement in advance. I was obliged to separate myself at the last meeting of the General Medical Council from, I believe, all, or most, of my Scottish and Irish friends, and to vote in a minority with the representatives of the English Corporations. The occasion was this. You are aware that the medical curriculum has been within the last decade extended to five years; and even with this extension it is still overcrowded and likely to become more so as

the demand for special practical subjects to be included in the curriculum increases. Now, Mr. Huxley many years ago suggested, in the interest, of course, of scientific education as he conceived it, that the strictly medical training of the university and medical school proper might be lightened by getting some of the early discipline in elementary physics, chemistry, and biology into the schools, to be pursued side by side with the more ordinary scholastic discipline, before the usual age of commencing strictly medical studies. Although this suggestion was not taken up at the time, at least to any very appreciable extent, it now appears that a good many English schools of the higher kind have, by engaging science masters and providing sufficient laboratories and apparatus, been placing themselves in a position to claim that this kind of instruction may be communicated to their pupils to such an extent as to enable them to pass either the whole or some portion of the first professional examination. The English Colleges therefore determined to recognise, after due investigation, such schools as appeared to them to be capable of giving, or rather to be actually giving, such instruction as is real and valuable in these subjects. The Irish Colleges, on the other hand, objected to this new departure, on the ground, apparently, that "grammar schools" are not, and should be practically debarred from becoming, schools of "science" in any sense such as should form part of a medical curriculum. Observe that it is conceded on all hands that five complete years after registration as a medical student must be devoted to professional studies conducted at a medical school. The attempt, therefore, to anticipate by a year the acquisition of some of this preliminary discipline does not in any way encroach on the time or attention to be given to more strictly medical or technical studies, but rather by clearing the way for these in advance it permits the year's paper at the medical centre to be more fully occupied by the studies proper to the medical art. I am far from assuming that no errors have been committed or that there is not a good deal to be said on both sides, but from what I have already laid before you in this discourse you will be prepared for the statement that I could not approve of anything that would tend to discourage the teaching of elementary science in English schools, and on this ground I voted with the minority on that occasion. I think the future is with the English Colleges in this matter and I trust that they will persevere.

I have now, gentlemen, only to congratulate you on your appearance in a school so well furnished in all its departments as Mason College, with whose origin and early progress one of my oldest friends, the late Dr. Heslop, was so closely associated that my interest in it may be said to date back to a period when I was still an Edinburgh man, an extra-academical teacher and hospital physician, and not a Glasgow University professor. I most cordially hope, for you, that the great scheme of a Midland University, with which this school shall be ever associated, may be successfully carried out; and meanwhile, I would join in the welcome extended to you by all your teachers, in the anticipation of a prosperous and successful session.

BRISTOL ROYAL INFIRMARY.—At the half-yearly meeting of subscribers to, and friends of, Bristol Royal Infirmary held on Sept. 26th, under the presidency of the Dean of Bristol, it was stated that the Hospital Sunday Fund produced £609, against £436 last year. The recent carnival at the Zoological Gardens resulted in nearly £1500 being received for the nurses' home.

VACCINATION RETURNS.—In Plymouth for the first six months of 1899 there were 870 successful vaccinations performed, against 817 in the corresponding period of 1898. At Falmouth 962 vaccinations were performed, against 122 in the first half year of 1898; at St. Austell 501, against 219; at Penzance 727, against 366; only at Liskeard and Bodmin did a smaller number of vaccinations take place.—At the meeting of the Devizes Board of Guardians held on Sept. 26th it was stated that the estimate for the ensuing half year included £100 for vaccination, as against £12 in the preceding six months.—The Local Government Board has declined to comply with the suggestion of the Penzance Board of Guardians that adults should visit public vaccinators for the purpose of revaccination and so save the cost of being visited at their homes.

An Introductory Address

ON

MEDICINE, OLD AND NEW.

Delivered on the Occasion of the Opening of the Winter Session 1899–1900 at St. George's Hospital Medical School on Oct. 2nd, 1899.

BY W. HOWSHIP DICKINSON, M.D. CANTAB., F.R.C.P. LOND.,

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GENTLEMEN,—In the present day more ways of employing life are open to an Englishman than ever before presented themselves. English commerce traverses every sea; all round the world men of our race stand on the frontier of civilisation and impart to the surviving aborigines their drink, their expletives, and something of their knowledge of firearms. Putting aside the thousand ways of life which the nineteenth century offers to the Anglo-Saxon I will touch only upon the services and the learned professions. The army and navy may be briefly though respectfully dismissed. A calling of which the purpose is to destroy life appeals less to the sympathies than one of which the aim is to save life, though we must unwillingly admit that our efforts to destroy are more constantly successful than our efforts to save. As to the "three sisters of old"—Law, Physic, and Divinity—I think that those have done well who have decided to attach themselves to the medical member of the family. I tremble to touch on Divinity, but may at least say this: among the purblind race of miserable men are many whose narrow field of vision is better fitted to comprehend natural knowledge than supernatural, the finite than the infinite. Such have chosen wisely who have found their employment in medicine. With this the Law compares unfavourably in this respect. Medicine is wholly beneficent, at least in intention. The opponent is disease and is always in the wrong. The advocate is bound to a side which may not be that of justice. His endeavour may be to make the worse appear the better cause. The process is on the whole useful; truth may come out by contention; but yet it must be allowed that if one counsel is right the other must be wrong, and may be doing his best in the cause of iniquity. No such partisanship directs the efforts of the physician; if he is confronted with another it is in order that both may work together against the common enemy. All rejoice in his success and agree in lamenting his failure. Our purpose is nothing less than the good of the human race. Our ideals are as lofty as are permitted to man, but endeavour is one thing and accomplishment another. If we look at what has been achieved we shall find that that is little compared to what is to be hoped for. Our retrospect will take us through the valley of humiliation; let us hope that at last we may discern some glimmer of the lights of the desired haven.

Forty centuries have brought us indeed a cornucopiæ of drugs, while they have presented to our view a doleful procession of theories which were erroneous and practices which were injurious. The past abounds with warning and suggests the melancholy reflection that our ancestors would on the whole have lived longer had they had no physicians among them. "We may lay it down as an axiom," says Addison, "that when a nation abounds in physicians it grows thin of people"; and in another place he founds a practical suggestion on this rule. "I must confess," says he, "for the good of my native country I could wish that there might be a suspension of physic for some years, that our kingdom, which has been so much exhausted by the wars, might have leave to recruit itself." Literature abounds with sarcasms directed against the profession of medicine, and it must be allowed that in the last century, and especially in the earlier part of this, they were by no means without justification; but we may trust that few, and those only the most harmless, are applicable at the present day. The practice of our ancestors, mostly injurious, was actuated by faith as fervent as ever comforted a martyr, though here the faith was in one person and the martyrdom in another. Nature is much enduring.

No sort of treatment excepting that employed by the law kills everybody. Those who survived were thought to have been cured; the patient was grateful to the physician who did his best to kill him; and the physician, "bold in the practice of mistaken rules," looked upon himself as a public benefactor when he was no better than a public nuisance. Now the old faith has gone from us or has been transferred from Art to Nature, and medicine has become a comparatively harmless occupation. A few superstitions still remain, but they are less exacting and unreasonable than once they were.

"The old order changeth, yielding place to the new." But the old order has not quite passed away nor the new fully arrived. We are in a period of transition. Medicine is ceasing to be empirical and becoming scientific. The reign of science has not yet been completely established, but it casts its shadow before; and we may look forward to a time when the physician, already deprived of half his terrors, shall be as beneficent in act as he always was benevolent in intention. Up to recent times the progress of medicine has been irrational and unscientific, not always contrary to reason and science, but not necessarily guided by them. First came the accidental discovery that certain vegetables and minerals produce certain effects on the human body. This mode of enlightenment dates from the earliest times, is common among savages, and is in vogue with those who do not so regard themselves. To this we owe opium, cinchona, colchicum, digitalis, mercury, iodine, and, indeed, most of the drugs which we could least spare. Some of them we term "specific," a word which in itself is a confession of ignorance. As to most of them we know little more than that they produce certain effects, we do not know how. How they were found out so to do is a mystery—not by any process of scientific deduction, probably largely by haphazard experiments, directed, if at all, by erroneous theories; but empirical as was the system, if system it may be called where system was none, it was not unfruitful; it has been at work from remote antiquity and it would be strange if among the accumulations of many ages and many countries there were not some things worth retaining. Much has been discarded.

> "Time hath, my lord, a wallet at his back
> Wherein he puts alms for Oblivion."

That wallet is stuffed with unsavoury drugs—dead men's skulls and all uncleanness, mummy powder, foxes' lungs, blackbirds' dung, and other repulsive objects, but not all repulsive, for we discern among them the eyebright, whose resemblance to the human eye declared its use in diseases of that organ, and the red rose, a sovereign remedy for hæmorrhage. But Oblivion has not grasped everything. Much has escaped and been handed down to our refined and critical age. The empirical use of medicaments so obtained formed the greater part of pre-scientific medicine. By empirical I mean, as the dictionary has it, "practised only by rote, without rational grounds." But let us not be ungrateful to our forefathers because we have acquired methods which we think superior to theirs. The debt which medicine owes to empirical therapeutics must be acknowledged as long as medicine is practised. But if the medicine of former days was largely empirical or irrational, not so was surgery. Surgery as compared with medicine is a rude and simple art. If an eye offend thee, pluck it out; if there be a tumour, eradicate it; if a bowel be strangulated, cut the bonds; if there be a collection of pus, make a hole for its escape. All this is simple, but it is eminently scientific. The fundamental mischief is recognised and intelligently dealt with. Hence it comes that most of our successes have up to a recent date belonged to the department of surgery. I say most, not all, for vaccination—perhaps the greatest of them—must be regarded as a matter of medical reasoning rather than surgical manipulation. To this I shall revert.

The advances of modern medicine may be considered under three heads: 1. We have learned that many of the processes which constitute disease cannot be controlled by drugs; they run their course regardless of pills, potions, and plasters, and cannot be brought to an end by such means except it be to an untimely one. 2. We have learned to enlist in our service the influences of external nature and with their aid are able in certain diseases to secure results which to more narrow therapeutics were impossible. 3. We have learned to trace many diseases and morbid conditions to minute organisms which were not only unknown to our forefathers, but impossible to be known by them, because they did not possess the instruments necessary to their detection. We may carry a pestilence in a test tube and the means of destroying the army of Sennacherib in a waistcoat pocket. But these malign creations have a redeeming quality, for some of them are protective against themselves, while others are capable of indirectly generating their own antidote and curing the mischief themselves have caused. To each of these lines of progress I must briefly revert.

First, as to the respect due to Nature, and the wisdom of not meddling where we are likely to mar. Great is the *vis medicatrix Naturæ*. In how many disorders where our ancestors tried to cure are we content to wait for recovery! I can recall the old ferocious and fallacious treatment of pneumonia with bleeding and blisters, calomel and antimony, and wonder alike at the assurance of the physician and at the patient's tenacity of life. The swing of the pendulum, which acts in medicine as well as in politics, caused the depleting system to be succeeded by its opposite—that of saturating with alcohol—which had at least this good result; it showed that exhausting measures could be dispensed with in the treatment of acute inflammation. Similarly with typhoid fever and many other disorders. Typhoid patients used at one time to have periodic doses of grey powder. Later saline draughts were chiefly relied on, haustus ammoniæ citratis 4tis horis with cruel punctuality, as if more important than sleep or food. Great Nature's second course is sleep; and food more germane to the matter than all the citrates of the Hesperides. Among other modes in which our fathers played an active part where we are content to be passive I may refer to an attitude of the old physician which is occasionally to be discovered among his successors. The poet tells us that "whatever is is right," the physician of a bygone but unforgotten age was apt to say "whatever is is wrong." Nature and the physician played the parts of the Government and the Opposition; whatever one did the other opposed. If purging occurred in the course of cholera obediently to some natural law whereby poisons are expelled the physician was ready with his opiates and astringents to forbid the discharge. We have not to go back many generations to find that there were those who forbade water in cholera for no other reason which is known to us than that Nature called for it by creating thirst.

In recent days antipyretics have come into fashion, which if ever useful I take leave to think are more often injurious. If Nature raises the temperature of the body Art is invoked to lower it, as if the danger lay in the temperature rather than in the condition which caused it. No doubt a very high temperature is in itself injurious, but it is more to the purpose to say that a person has a high temperature because he is ill than that he is ill because he has a high temperature. I have known the body heat to reach 111° F. and recovery to occur without the employment of any special means to make it less. Let us not be in haste to attack the temperature as if it constituted the whole or chief danger. I regard it not so much as a danger as a sign of danger. Antipyretic drugs are as a rule depressing; it may be that some who might have survived their disease have succumbed to the combined effects of the disease and its treatment. Increased temperature represents increased combustion and occurs especially when there is a poison to be got rid of. I have often asked myself whether this destructive process is not also a purifying one whereby offending matters in the body are burnt and purged away.

Looking back upon the energetic attempts to cure what would recover if left alone and at the contradictory tendency to oppose with general uniformity processes not uniformly injurious we may contrast the vain confidence of the past with the humility and subservience which for the most part characterise the methods of to-day. Without affecting to be superior to our ancestors—I am not sure indeed that we are in all respects their equals—we are necessarily wiser, for we have had certain generations of additional experience. Time is on our side. Pathology has become a science and the course of disease is recognised as subject to natural laws. Much of our progress has been negative in the abandonment of what was injurious, but we may count positive gains. Foremost among these is the trust we have learned to repose in the influence of external nature. The treatment of disease by climate has probably been practised from time immemorial, though never to the extent which our wide dominion makes now possible or in the manner which our present knowledge directs. When we consider that different

organs possess different degrees of activity in different temperatures, that different diseases prevail in different regions, and that an organ which is prone to disease in one place is exempt in another, what can be more obvious than the wisdom of adjusting our geography to our infirmities, and carrying a failing structure to a place where it is relieved of this stress or the tendency under which it has broken down? "Hot and cold and moist and dry" are at our choice. The globe presents infinite variety and could it speak might say with the Apostle, "I am made all things to all men, that I might by all means save some."

To touch upon tuberculosis, much as we have recently learned of the intimate nature of this disease, we can no more deal directly with the organisms on which it depends than we could before they were discovered. The bacillus has as yet defied germicides. It seems to be more resistant in structure and more tenacious of life than the tissues among which it lies. We might, as the old song puts it, "miss the bluebottle and hit the Mogul." But without attempting to kill the bacillus *in situ* it is open to us to forbid its further admission and to fortify the tissues against such as have obtained entrance. The treatment of tuberculosis by climate is nothing new. For over 100 years scrofula, or tuberculosis not of the lung, has been treated at Margate by exposure to the air of the North Foreland with a success which has not been attained elsewhere. Pulmonary tubercle has also long been dealt with climatically, but with a less bold appeal to fresh air. The desiderata for this condition were, in the minds of our predecessors, warmth and equability. This was distinctly formulated by "the great Thomas Young" and represented the practice of 1815 and many subsequent years. Consumptives were accordingly sent to low-lying and sheltered places on the sea-coast or were crowded into hospitals in towns where, if some of the desired conditions were present, the most important were assuredly wanting. Protection from catarrh is essential; here we are at one with those who preceded us; but we recognise what they did not—the paramount influence of virgin air. High altitudes and ocean expanses, together with an open-air life, even though somewhat careless, accomplish what was not attained when the chief aim was protection from cold and the invalid was surrounded with precautions lest the winds of heaven visit his face too roughly. Now for tuberculosis of every kind we make alliance with the powers of the air, whether on the historic North Foreland or where the North Atlantic pulverises itself on the Cornish cliffs, or on the lofty levels of South Africa, where the invalid may walk in warmth and comfort at an altitude greater than that of the summits of Snowdon and Ben Nevis. I might give other examples of the tendency of the present age to enlist in our service the great forces of the external world rather than placing our chief reliance upon the druggist. Bright's disease is a case in point.[1] I take a modicum of credit to myself, as one who has little to spare, for having been, so far as I know, the first to suggest the climatic mode of treating this disorder founded on its observed infrequency in sub-tropical regions and on the principle that cutaneous activity must promote renal quiescence. Later and general experience has justified this appeal to the influences of the atmosphere and has shown that in this respect, as in others, we can utilise the great powers of Nature which we cannot control. To those who are in populous cities pent change of the town for the sea-shore or the open country, of foul air for fresh, comes nearer to being a panacea than anything else we know of. It does good indiscriminately to all to whom it is possible to do good. The influence of atmosphere is beginning to be recognised and convalescent hospitals to multiply, but among the hopes for the future is a great increase in the receptacles for chronic disease where the feeble efforts of Art shall be reinforced by the over-ruling powers of Nature.

The third line of progress to which I must revert is the most striking example which we possess of the substitution of scientific for empirical methods. A new era is opening to us; we have learned to recognise and to isolate the essential principles of many diseases and morbid processes and have compassed achievements, mostly in prevention but to some extent in cure, which we ourselves must wonder at and which our forefathers would have regarded as impossible. Much as has been done, this is little in comparison with what will surely follow. The great series of discoveries relating to objects which are infinitely small and leading to results which are infinitely great is due to minute observation, reasoning, and experiment, and marks the replacement of empiricism by science. The first discovery in this field was that of the bacillus of anthrax, which was recognised in 1850, though its full relation to this disease was not demonstrated until 1873. In this year was revealed the spirillum, the conspicuous organism of relapsing fever. Subsequently the essential bacilli of suppuration, erysipelas, tubercle, diphtheria, tetanus, cholera, glanders, typhoid fever, influenza, plague, and leprosy have been exposed to view. While these intruders from the vegetable kingdom were successively showing themselves the animal kingdom was delivering up secrets of scarcely less importance to the human being. The filaria, a worm whose element is the blood, with the mosquito as *particeps criminis*, turns out to be at the bottom of some of the gravest and hitherto most incomprehensible of the diseases of the tropics. Malaria has been traced to a protozoon which obtains entrance into the blood corpuscle and the essential cause of this ancient scourge is at last made clear. Dysentery, too, has given up its organism in the shape of the amœba which is carried in the course of the circulation from the bowel to the liver and thus explains the direct connexion between hepatic abscess and dysentery, which has long been maintained and long disputed. The organic generators—for such there must be—of small-pox, typhus fever, scarlet fever, and measles are as yet hidden, but we may be assured that they will not long remain so. It scarcely admits of doubt that every specific fever, most epidemics, every form of tuberculous disease, and all malarial disorders originate in living organisms introduced from without. It seems not improbable that cancer may ere long be added to the list. It may be roughly estimated that, putting aside diarrhœa, which may be due to many causes of which organic intrusion is one, nearly a quarter of the dwellers in these islands, and probably a larger proportion of the race as a whole, owe their deaths to some of these forms of low life. These organisms, so low in the scale of creation that to call most of them vegetables is a compliment, seem to make use of the exalted human body merely as a fertile region in which they may flourish and multiply irrespective of the harm they do to the field of their choice.

As to the origin of disease in extraneous organisms one point needs to be insisted on and even emphasised. We have to reckon not only with the seed but the soil. The tissues may be receptive or resistant. There is natural immunity and natural predisposition. Some persons are proof against small-pox or scarlet fever. Some are invulnerable to tuberculosis, while others are peculiarly susceptible to it. Though the seed fall alike upon several individuals, as, indeed, it falls upon us all more or less, it will grow in some and not in others, according to the suitability of the ground. The suitability to grow tubercle may be hereditary or may be engendered by circumstances, among which we recognise low nutrition, inflammatory action, and alcoholism, all of which fit the tissues for the entertainment of the bacillus. Let us therefore not regard the imported organism as if it were the only thing to be considered in the generation of disease.

With this proviso we may return to the bacilli and how far we can prevent or control the morbid processes with which they are connected. Three methods present themselves: (1) killing or excluding the microbes; (2) establishing immunity in the individual; and (3) employing antidotes in the shape of the antitoxins. The use of antiseptics in surgery affords a typical instance of the first method. Suppuration depends on specific organisms introduced from the outside and may be prevented by keeping them out or killing them. Hence has arisen a practical improvement so great that only anæsthetics can be mentioned beside it and even these must take a second place, for it must be esteemed greater to save life than to forbid pain. This great discovery, be it noted, was no result of chance; it was in no sense empirical, but was based upon minute research and scientific deduction. In Listerism, as it is called, we see not only a triumph of surgery but a triumph of scientific, as contrasted with empirical, procedure.

Much as has been done by the use of germicides in surgery it must be admitted that as yet we have had no corresponding success in medicine, nor have we learned to cure any of the constitutional disorders by directly attacking their bacilli. Phthisis, in which these can be reached by inhalation, appears to offer the best chance, but as yet little has been achieved. But if our present knowledge does not

[1] Pathology and Treatment of Albuminuria, 1867, Chap. xvii.

enable us to cure zymotic disease, it has provided us with means of prevention which have done much and promise more.

Here open upon us the extensive subject of immunity and the great discovery of Jenner. It has long been known that certain infectious diseases—small-pox, scarlet fever, measles, and the like—do not as a rule occur more than once in the same person; they smite once and smite no more; one attack confers a protection against others. Then it seems to have become common knowledge in the dairy farms of Gloucestershire that persons who had had cow-pox did not afterwards contract small-pox. This led to the scientific practice of vaccination, to the possible extinction of small-pox, and to remote results in the field of preventive medicine which we can partly see in the present and confidently discern in the future. How a disease protects against its own recurrence is not perfectly known and could not here be adequately discussed. Vaccination is but another manifestation of the law under which certain diseases having occurred once do not occur again. Cow-pox is a miniature small-pox—small-pox weakened by its passage through the cow. Thus a person who has had cow-pox has virtually had small-pox and cannot have it again. The use of attenuated and comparatively harmless infections as protecting against the more malignant has recently received a development which would probably fill Jenner with astonishment could he look down on Pasteur's Institute and his own. Immunity from rabies is produced by the introduction of minute doses of the poison modified by passage through the rabbit, and this can be accomplished better late than never, though the treatment be not begun until after the bite has been inflicted. It appears that plague can be prevented by inoculation with its own products modified by heat, and similar preventive treatment has been applied to typhoid fever, though it is as yet too early to speak confidently of the results. The same may be said of cholera. Not only can a disease be prevented by its diminutive—small-pox by cow-pox—but it may also be prevented, as in the case of rabies, by establishing a tolerance of the poison without necessarily giving rise to any disorder analogous to that which it is sought to prohibit.

How great a scope is here presented to us it is impossible to estimate; but there is nothing new under the sun. When we administer a small dose of poison to protect against a larger, or one less virulent to protect against one more virulent, we but imitate the practice of Mithridates, who, as we were taught in our youth, treated himself with small doses of poison until he was able to defy larger; and, if the tales be true, discerned on the banks of the Euphrates some of the laws of prevention which are now receiving attention on the banks of the Thames. It is said that the snake-charmers of India protect themselves from the effects of snake-bite by drinking snake-poison. An advance on the same field by a different process, one which deserves to be classed among the marvels of modern medicine, is to be found in the discovery of antitoxic serum, serum made prohibitive of a disease by acting upon it with material which that disease has generated. To put this briefly and in reference to a typical case a certain bacillus causes diphtheria; the same bacillus secretes something which indirectly cures diphtheria. The secretion is not itself antidotal, but it imparts an antidotal property to serum which becomes effective both for prevention and cure. When we look at what has been accomplished, and in how short a time, in tracing diseases to their sources in foreign organisms and at the possibilities in the way of prevention and cure which are implied we are filled with wonder and with hope. It is not too much to predict that before long every zymotic disease and perhaps many which we do not consider so will be found to have an extraneous origin, and if further practical results are not obtained the future will not fulfil the promise of the past. What with Jenner's fundamental discovery, the superadditions which modern science has built upon it, and the new modes of creating antidotes to disease by the use of its own products, we see a wide prospect of relieving the ills of mortality, limited though it be by the prejudice of the vulgar and the subservience of politicians who value the votes of their constituents more than their lives. This brings us within sight of the "conscientious objector," though one does not see how conscience is concerned in a matter which is not one of religion or morality but of expediency. The conscientious objector is himself to be objected to as one who presumes without special knowledge to decide upon a question where special knowledge is required. Ignorant he necessarily is, but he is less to blame than his betters who have endorsed his ignorance and allowed it to influence legislation. Liberty is an excellent thing, but to give liberty to spread small-pox may be thought to be carrying it too far.

Looking back over the last half-century I have shown how much has been done and how much undone; how we have learned to abstain from mischievous interference, how we have found in external nature remedial agencies which our predecessors very imperfectly discerned, and to how great an extent we have superseded empiricism by science. The progress of the age has shed its light upon medicine which, in addition to being an art, has become a science. As an art it is no longer of worse than doubtful utility. Without claiming that even yet it is always productive of good, since we must allow for human imperfection, it has ceased to be actively mischievous and become in certain definite particulars of prevention and cure actively beneficent. Most that has been done and all that is to be confidently predicted is due to the association of medicine with science which has only recently become possible. Old medicine, comprising, as it did, much random observation, false theory, and empirical practice, has given place to new medicine with its minute investigation, exact experiment, logical deduction, and rational procedure. The chief means of modern advance has been the microscope, only of late made effective among the minutiæ of pathological life. Modern progress has been morphological rather than chemical, having to do with shape rather than with material, with organisms rather than with the elements. Liebig and his followers did much; it was not their fault that they did not see what was not then in sight. Born in later days, we have discovered a new world of the existence of which they had no conception and of which the limits are hidden from ourselves. Let us fully recognise that the end is not yet. What we deem to be advanced knowledge the next generation may regard as antiquated error. Many of our views can be regarded only as provisional, some to be developed, others to be replaced. The physician of the future may look back upon us with something of pity as those whose endeavours have fallen short in achievement, but let us hope that in his tolerant retrospect he may find that we have done something towards laying foundations on which he has erected a glorious superstructure.

Regarding medicine as a science, if that can be called a science which is a quintessence of many, it is of all the most progressive and is that which of all others tends most directly to the benefit of mankind. Those are to be congratulated who have chosen this vocation, whether it be looked upon as an intellectual pursuit or as affording opportunities for doing good.

TYPHOID FEVER AT FALMOUTH.—At the meeting of the Falmouth Corporation held on Sept. 28th the memorandum issued by Dr. G. S. Buchanan (of the Local Government Board) was considered. Dr. Buchanan advises that the residents should be cautioned to boil all water and that the sewers should be flushed. He adds that there is a large number of defective house drains in Falmouth and advises that all should be thoroughly supervised and recommends the appointment of a second sanitary inspector without delay. The corporation decided to follow the advice of Dr. Buchanan who is still pursuing his inquiries into the sanitary conditions of the town.

THE VOLUNTEER AMBULANCE SCHOOL OF INSTRUCTION.—The winter work of the school commenced on Monday, Oct. 2nd, at the headquarters of the London Rifle Brigade, when two unusually large classes paraded for instruction under Brigade-Surgeon-Lieutenant-Colonel P. B. Giles, senior medical officer. One class, consisting of men already in possession of the Army Ambulance certificate, is being instructed in the use of the roller bandage and the duties of hospital orderlies. The other class, consisting entirely of untrained men, is being taken through the ordinary course of first aid, stretcher and wagon drill as laid down for regimental stretcher-bearers in the new manual for the Royal Army Medical Corps. Among the corps well represented in both classes are the London Scottish Rifle Volunteers, the London Rifle Brigade, the 3rd Volunteer Battalion the Queen's Regiment, and the 1st Cadet Battalion King's Royal Rifles. The competitions will take place on Nov. 27th and Dec. 4th, and the official inspection on Dec. 11th.

An Introductory Address

ON

THIRTY-FIVE YEARS OF MEDICAL PROGRESS.

Delivered to the Students of Yorkshire College, Leeds, on Oct. 2nd, 1899, on the Occasion of the Opening of the Winter Session, 1899–1900,

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MR. PRESIDENT, LADIES, AND GENTLEMEN,—When the council of this college did me the honour of inviting me to be present to-day and to take part in these proceedings I had the greatest pleasure and satisfaction in accepting the invitation, for being myself a North-countryman and having spent the first ten years of my professional life in the North of England I have always had a warm feeling for this school of medicine and a high regard for the men—the distinguished physicians and surgeons—who have made Leeds so justly famous as a great centre of practical medicine and practical surgery. Further, I knew that in coming to Leeds I would meet many old friends and have the opportunity of renewing many pleasant and valued acquaintanceships. But the pleasurable anticipations which your invitation gave me were, I confess, tempered by the knowledge that I was expected to give an address. I know not how other men may feel under such circumstances, but I do know that to me personally the selection of a suitable subject is always a matter of some difficulty and a cause of no little mental worry. Well, after consideration, it seemed to me that as my remarks were intended for the medical students who are to-day commencing the work of another winter session it might not be uninteresting to glance at some of the chief advances and developments which have taken place in the art and science of medicine during the past 35 years and to direct attention to some of the points of contrast between the position of the medical student when I commenced the study of medicine in the year 1865 and the position of the medical student of to-day. It is unnecessary to say that in every department of medicine great developments have taken place, and it is impossible in the time at my disposal, even if I had the necessary knowledge and ability, to attempt to review the whole field. I shall limit myself, therefore, to one or two of the more important points.

To my mind the most striking fact, and I venture also to think the most important advance, whether we look at it from the point of view of the surgeon and general practitioner or from the point of view of the patient, is the increased safety of surgical procedure. This has, of course, resulted from the adoption of rigid antiseptic methods; and this great advance, which has saved innumerable lives, which has caused a diminution in suffering which is quite incalculable, which has relieved the surgeon and the general practitioner of an enormous amount of anxiety and mental distress, and which has vastly extended the sphere of activity and the usefulness of the surgeon by rendering safe and of everyday occurrence operations which were either previously undreamt of or which were formerly so hazardous that they were never attempted except as a last resource,—this great advance is, I need not say, chiefly due to one man—the illustrious Lister. For those of you who are commencing the study of medicine to-day and who see the results of surgical operations performed under modern (aseptic) methods it will be difficult, perhaps impossible, to realise the conditions which were present in the surgical wards of our infirmaries in the year 1865 and the incalculable benefits which this great advance has conferred upon the human race. When I commenced the study of medicine in the Edinburgh Royal Infirmary in the year 1865 healing by "first intention" was the exception; healing by the long, exhausting, and often painful process of granulation and suppuration, with all its attendant constitutional disturbance and grave dangers of septic absorption, pyæmia, and death, was the rule. Then, operations which are now considered trifling were not unattended with danger. I remember that while I acted as dresser in the wards of the late Professor Spence, one of the ablest and most successful surgeons of his time, one of my patients died from pyæmia after amputation of a finger and another after removal of a loose cartilage from the knee-joint. In the Edinburgh Royal Infirmary and the Newcastle-on-Tyne Royal Infirmary—the hospitals with which at that time I was personally acquainted, and they were in no way exceptional, for as a matter of fact in all of our great hospitals the results were practically the same—the mortality from septic absorption and pyæmia was terrible to contemplate. Then, surgeons were loth, except under the pressure of dire necessity, to open the cavity of the cranium or the cavity of the peritoneum. Now, as you are aware, all this is changed, and I could give you no more striking illustration of the change than the remarkable results which have been obtained by Mr. Mayo Robson in the surgical treatment of gall-stones and allied conditions.

I know not whether I am right in thinking that the aseptic treatment of wounds has almost reached the utmost limit of its possibilities, but when the conditions for its application are satisfactory and when it is faithfully and carefully carried out the results are so perfect that to me—a physician and consequently to some extent an outsider—such appears to be the case. No doubt in the future some antiseptic will be discovered as powerful as corrosive sublimate, but innocuous when absorbed into the human system. This would be a great improvement. Or, what perhaps would be a still further advance some substance, possibly an antitoxin or the product of some micro-organism, will be discovered which when injected into the human subject is innocuous, but which is capable of preventing the development of suppurative and septic processes. Such a remedy would be of incalculable benefit not only to the surgeon but also to the physician, for it would enable us to deal effectively with such grave conditions as ulcerative endocarditis, puerperal peritonitis, and some forms of meningitis, to give only one or two illustrations.

It seems to me to be an important and instructive lesson for those of you who are studying medicine to-day—for it shows the process by which all great advances in the healing art will in the future almost necessarily be effected and worked out—to remember that the evolution and development of the antiseptic system of treating wounds, which to-day is so simple and so satisfactory, was a gradual process, the result of minute and elaborate investigations and observations both in the laboratory and at the bedside and of indomitable perseverance and hard work. In the early stages of its development the antiseptic treatment met with considerable opposition and criticism. This was only what might have been expected, for it is natural, and also eminently desirable, that any new departure in the way of treatment should be very rigidly tested and proved before it is adopted by the profession. Every step in the process was keenly criticised. Let me give you one illustration. When I was house surgeon to the late Professor Spence a vigorous controversy took place in the Edinburgh Royal Infirmary as to the merits of the antiseptic catgut ligature. The case which gave rise to this controversy was that of a man who was admitted to Professor Spence's ward suffering from aneurysm of the carotid artery. Professor Spence decided to ligature the vessel. Antiseptic catgut had just previously been introduced by Professor Lister who was then in Glasgow, and I, at Professor Spence's request, obtained from Professor Syme (who was a very strong supporter of Professor Lister) a properly prepared catgut ligature. The artery was duly tied. Shortly after the operation the patient became hemiplegic and in the course of a few days he died. The parts were removed and carefully examined. Professor Spence maintained that the catgut had softened and given way; he was consequently inclined to distrust antiseptic catgut. Professor Syme affirmed that the knot had been badly tied—in short, that the slipping of the ligature was the fault of the surgeon and not of the catgut. The specimen was submitted to several different observers; some of them took one view and some the other; and others, if I remember rightly, could not make up their minds as to which view was correct or cautiously declined to give any opinion. Subsequent experience has, of course, shown that antiseptic catgut

is an admirable ligature, and in support of this proposition and also since no more remarkable illustration could, I think, be given of the splendid results which may be obtained by aseptic methods in the hands of the expert and skilful surgeon I may, perhaps, be allowed to cite the following case.

Some two years ago a man was admitted to the Edinburgh Royal Infirmary under my care suffering from Jacksonian epilepsy. Drug treatment having failed to give any relief the operation of trephining was performed by Mr. Cotterill. A portion of bone of the size of the palm of the hand was removed. The dura mater was then freely opened. No gross lesion was detected though the brain was explored in various directions with a trocar. The large wound in the dura mater was brought together by a series of catgut ligatures. The large portion of bone which had been removed was then carefully replaced and the scalp wound closed in the usual way, of course under rigid aseptic precautions. The wound healed by the "first intention" and in the course of a few days the patient had completely recovered from the operation without the slightest pain, fever, or constitutional disturbance. Some three months after the operation the patient died in a fit. On subsequent examination it was found that the portion of bone which had been replaced was firmly and accurately united, the inner table being perfectly smooth and natural. The inner surface of the dura mater was to all intents and purposes absolutely normal. The catgut sutures remained *in situ* in a perfect state of preservation, indeed they looked as fresh as if they had been introduced the day before. The wound in the dura mater was united so perfectly and accurately that it reminded me of a beautiful piece of needlework. I doubt whether the most expert seamstress working with dead tissues (silk, &c.) outside the human body could have produced a more perfect result.

Well, gentlemen, it is something to have seen and lived through this great advance, and you—the medical students of to-day—are to be congratulated, since as soon as you commence practice you will be in a position to deal with your surgical cases with a safety and security which was quite impossible even for the most able and experienced surgeon 30 years ago.

The second great development which has taken place since I commenced the study of medicine is in connexion with our knowledge of the all-important part which micro-organisms and their toxins play in the production of diseases of an infective, contagious, and septic kind. Bacteriology is, practically speaking, a new science. In the hands of Pasteur, Koch, and a host of other brilliant and distinguished workers most elaborate and beautiful methods of staining, cultivating, identifying, and differentiating micro-organisms have been worked out and perfected; the special micro-organisms which are the cause of a large number of infective, contagious, and septic diseases have been identified; the life-history of many of these micro-organisms has been followed out; further, in many cases the manner in which they gain access to the human body and in which they produce their injurious effects has been established; and, what is of still greater importance, in some cases methods have been discovered by which these injurious effects may be prevented or counteracted. In short, a mass of knowledge which is of inestimable importance for the prevention, diagnosis, and treatment of disease has already been accumulated. And all this, you must remember, has, practically speaking, been effected in the brief space of the last 15 or 20 years. It is not too much to say that the science of bacteriology is as yet in its infancy. It is not too much to hope that this great advance will continue and that even more brilliant discoveries will be made during the next 35 years. It is no extravagant expectation to suppose that effective means of preventing or combating such diseases as a common cold, influenza, pneumonia, tubercle in all its forms, typhoid fever, puerperal fever, ulcerative endocarditis, and other septic processes—to give merely a few illustrations—will, sooner or later and perhaps before very long, be discovered.

But, further, it must be remembered that the definite knowledge which bacteriologists have furnished us with regarding the nature and life-history of the poisons which are the cause of many of the contagious and infectious diseases, although it may not as yet have been attended with the discovery of a special and, so to speak, specific method by which these diseases can be prevented or arrested (such as a preventive inoculation or an antitoxin plan of treatment), has had, and is having, a most important and far-reaching influence in stimulating the profession, the sanitary authorities, the Government, and the public to adopt and to carry into effect the general sanitary measures which are of so much importance for the well-being of the community and for the prevention of diseases of an infective and contagious kind. In this connexion I need only refer to the so-called "crusade against phthisis." The very basis of that movement, which is attracting so much attention in this and in almost all parts of the civilised world at the present time, is the fundamental fact discovered by Koch that phthisis and, in fact, all forms of tuberculous disease are due to the introduction into the body of a specific micro-organism—the tubercle bacillus—coupled with the knowledge that phthisis is, if properly dealt with in its earlier stages, a much more curable disease than was at one time supposed.

But although preventive medicine has made, and is making, great and rapid strides, the recent legislation on vaccination (notwithstanding the fact that there has been a large increase in the number of primary vaccinations during the past half year) is, in my opinion, an unfortunate retrogression. If there is one fact in preventive medicine which is more clearly proved than any other it is this, that by means of successful vaccination and revaccination small-pox may be either altogether prevented or greatly modified as regards its severity. It cannot be doubted that if any considerable proportion of the community are allowed to grow up unvaccinated a rude awakening will, sooner or later, take place. The pity of it is that the sufferers will be not the conscientious objectors themselves but their innocent and unprotected children.

While I am referring to bacteriology and preventive medicine let me express, gentlemen, the hope that some of you whom I address to-day may take an active part in what appears to me to be one of the most promising fields of professional labour. But while expressing this hope let me at the same time point out to you that the subject of bacteriology is one which cannot be lightly taken up or easily mastered. The methods are so elaborate and technical and the observations demand such minute care and such extreme accuracy that in order to do good and reliable and original work in this department a prolonged training and apprenticeship are absolutely necessary. But in this respect bacteriology does not differ from any other department of science or of medicine. In our every-day work of clinical observation and investigation exactly the same qualifications which go to form the competent bacteriologist are required. I cannot too forcibly impress upon you the necessity of acquiring during your student days a minute and thorough knowledge of the elaborate methods of clinical observation and research, of cultivating your powers of observation, of training yourselves in the accurate and painstaking observation of minute details, and, above all, of teaching yourselves to avoid loose and exaggerated statements and of having, even in the simplest observation, the most scrupulous regard for truth. And while speaking of original work, whether clinical or more purely scientific, let me point out that the original observer of the future must start on a much more advanced platform of knowledge and with a much more thorough grounding and more detailed and elaborate scientific training than the original investigator of 35 years ago. In clinical medicine and clinical surgery, for example, the rough work of discovery, observation, and description has for the most part already been accomplished. It is hardly reasonable to expect that the same number of new diseases will be differentiated and described during the next 35 years as have been differentiated and described during the past 35 years. In this respect the work of the clinical observer in the future may, I think, be compared with that of the gold-miner in the Transvaal; the surface reefs are easily got at and easily worked, but to reach the deeper reefs and to work the deep-level mines is a much more difficult matter and will be a much more costly process. But—and this is the point to which I am leading up—there is every reason to believe that the gold is there. And it cannot be doubted that in the future, as in the past, the patient and diligent clinical observer will continue to reap a rich harvest of practical and scientific knowledge. It seems to me that the harvest will be most abundant and especially rich in the all-important subject of medical treatment and therapeutics.

Further, let me point out to you that every practitioner

of medicine has in the every-day work of his profession abundant material at hand for the prosecution of original research of a most important and valuable kind. Every medical student has the opportunity during his student career of training himself to be an original clinical observer. I would earnestly beg of you to make the most of these opportunities and to determine as soon as you get into practice and have the necessary material at hand to carry on some original clinical research. I would advise you to take up the study of some particular disease or of the diseases of some particular organ and whatever may be the subject which you select to go on studying it and making observations on it. You will find that original clinical work of this description will be a constant source of pleasure and interest to you; it will do much to lighten the drudgery and routine of your ordinary professional work, it will sharpen your powers of observation, it will give you a deeper insight into disease generally, and it will be of great advantage both to yourselves and to your patients.

The third great advance which has taken place since I commenced the study of medicine in the year 1865 may, I think, be fairly said to have occurred in connexion with our knowledge of the diseases of the nervous system. While in every department of physiology, pathology, and practical medicine great developments have taken place, the advance has nowhere, I think, been so marked as in the department of neurology. 35 years ago we knew comparatively little, for example, of the position and course of the nerve-tracts in the spinal cord and in the higher parts of the central nervous system, of the localisation of function in the brain, and of the diseases of the peripheral nerves. Now, our knowledge of all of these subjects and of an immense variety of other questions conected with neurology, which were at that time very ill-defined and obscure, is wide and elaborate, though at the same time very, very far from complete. And I would wish to point out that the contributions to our knowledge which have been made in this country at all events have been largely due to the labours of practising physicians and surgeons, or at all events of men who, since their observations were made, have become great practising neurologists and clinicians, such men as Hughlings Jackson, Ferrier, Bastian, Gowers, Victor Horsley, and Risien Russell. And in this connexion I would emphasise the immense importance of clinical, or rather clinico-pathological, observation as a means of elucidating the functions of the nervous system in man. The development of our knowledge of the structure and functions of the nervous system and of nervous disease which has taken place during the past 35 years has been chiefly the result of three great methods of research. The first of these is histological investigation. Improved methods of preparing and staining nerve-tissues have enabled us to trace out the course of fine nerve-fibres, to differentiate nerve tracts as they are successively developed (during the process of their evolution) or as they are picked out by degeneration and disease (during the process of their dissolution) to determine some of the structural changes in nerve-cells which result from different morbid processes and even some of the functional changes which are due to different forms of irritation and stimulation. The second is the method of making experimental observations on the lower animals, and the third is that of clinical and clinico-pathological observations of cases of disease in man. The value and significance of the results obtained by the last-named method are, I venture to think, often greatly under-estimated. There seems to be an impression that, from a scientific point of view, the results obtained from the observation of the effects of disease in the living man are on quite a different, an inferior, platform to the results obtained from the observation of the effects of experimental lesions in the lower animals. It seems too frequently to be thought that because an observation is made *on man* and because it is *clinical*, or rather *clinico-pathological*, it is of comparatively little value. Generally speaking, far more importance seems to be attached to the experimental observations made in laboratories on monkeys and dogs or even on guinea-pigs and rabbits than to the clinical and clinico pathological observations made in hospitals on man. Against this way of looking at the matter I desire to enter an emphatic protest. Far be it from me to appear to undervalue even in the slightest degree the importance of the experimental method. The great advance which has taken place in our knowledge of the nervous system during recent years has been largely due to the experimental observations of such men as Ferrier, Schäfer, Sherrington, Victor Horsley, Beevor, and Risien Russell in this country and of numerous distinguished physiologists and experimentalists abroad. It cannot be doubted that experimental observations on the lower animals have vastly increased our knowledge of physiology, of pathology, and of therapeutics, and have thereby, either directly or indirectly, been of the greatest service to the physician and surgeon both in the way of diagnosis and treatment, and consequently of the greatest benefit not only to sick and suffering men and women but also to diseased animals. But what I do claim is that a higher value should be attached to the results obtained by clinical and clinico-pathological observations on man than up to the present time would appear to be the case. For the purposes of human physiology clinical and clinico-pathological observations on man are of the greatest importance. It is only by these methods that we can hope to elucidate some of the most difficult and intricate problems connected with the physiology of the human brain, such, for example, as the localisation in the cerebral cortex of the impressions connected with the sense of movement, the working of the nervous mechanisms connected with speech, thought, and all the higher intellectual operations. No doubt the time will come, though it has not been as yet by any means reached, when experimental observations on the lower animals will have done all that they can be expected to do in elucidating the physiology of the human brain. Any further advance beyond a certain point—which is perhaps within measurable distance of being reached—in the understanding of the working of the human brain must necessarily be made by observing the effects of brain disease in man, since man is the only animal who can communicate his feelings, sensations, and thoughts by means of speech. The highest aim of physiology and pathology is, I suppose, to elucidate the manner in which the human mechanism works and to give us the data by means of which we can rationally and scientifically deal with the diseases to which man is liable. And the physiology and pathology of the human brain are, I take it, the highest departments of physiology and pathology.

Further, it must be remembered that clinical and clinico-pathological observations in man are beset with difficulties. It is only in a comparatively small number of the whole mass of cases observed that the results can be relied upon and satisfactory deductions drawn therefrom. The experimentalist makes his observations under conditions which are easy and simple in comparison with the conditions under which clinical and clinico-pathological observations in man must necessarily be carried out.[1] In the lower animals localised lesions can be produced with the greatest exactitude, the symptoms which result from those lesions can be noted and studied in their simplest and most isolated form, and the animal can be killed and the exact extent and position of the lesion can be verified at any period of the case. In man the experiments produced by disease are usually much more complicated and the interpretation of the results—the symptoms—is consequently much more difficult. In man we have to wait until death takes place before we can determine and verify the exact position and extent of the lesion. In some of the most important cases our clinical observations are altogether valueless since the opportunity is denied to us of following up our observations after death. In many of the cases in which this opportunity is afforded us, the lesions are at the time of death so advanced and have become so diffused and complicated that it is difficult or impossible to draw reliable and satisfactory conclusions as to the relationship between the lesion and the symptoms which we desire to elucidate. It consequently happens that an immense amount of detailed and patient clinical observation is altogether unproductive so far as any direct scientific results, in individual cases at all events, are concerned. I do not say that such labour is wasted or that it is grudgingly given—indeed, the very reverse is the fact. Every difficult case which is carefully studied adds

[1] This is, of course, a general statement. In one respect some of the experimental observations on the brains of the lower animals—I refer more especially to the observation of the effects of lesions of the sensory centres—are more difficult than the corresponding clinical and clinico-pathological observations in man or rather, I should perhaps say, the interpretation of the results is much more difficult in the case of the lower animals, since man is the only animal who can exactly describe the effects, the symptoms, which result from the lesion, by means of speech.

to our experience and makes us more able to unravel the complicated phenomena of future cases. And clinical observers are only too willing to cheerfully carry out such elaborate investigations, since they know that it is for the great advantage of the patient that every detail of the disease should be exhaustively and carefully studied; in the hope that information may be gained which will be of value to future patients; and with the expectation that in some few of the cases which they study clinically facts may be elicited, either during life or after death, which will add to our scientific and medical knowledge.

The great difficulties under which clinical and clinico-pathological observations on man are carried out, the complicated nature of the conditions with which the clinician and human pathologist have to deal, and the immense amount of unproductive labour which must necessarily be expended before any reliable results can be obtained, instead of being a reason for discrediting such observations, should rather, in my opinion, be a reason for crediting them with additional value in those cases in which the symptoms are sufficiently defined and in which the lesions are sufficiently localised to enable reliable deductions to be drawn from them—always, of course, provided that the observations are made by competent and reliable clinicians and pathologists. I mention the personal equation because it seems to me that there are three reasons why too little value has been attached to the results of clinical and clinico-pathological observations in man. One is the fact to which I have already referred—viz., that the conditions of the experiments made by disease are in many cases so complicated that reliable deductions cannot in the nature of things, except in, comparatively speaking, few instances, be drawn. Another is that until recently it was, perhaps not unnaturally, thought that the observations of clinicians were, in many instances at least, for the purposes of pure science less exact and reliable than the observations of physiologists and pathologists who had been trained in laboratory methods. And the third is that in consequence of the great development in physiology which has taken place of recent years the teaching of physiology has necessarily, and rightly, been handed over to specialists who have consequently, in some cases at least, lost touch with clinical medicine and with clinicians.

Had time permitted I would have liked to have referred to some of the other departments of medicine in which important discoveries and developments have taken place—such, for example, as the increase of our knowledge regarding the functions of the ductless glands, and particularly of the thyroid gland; to the treatment by animal extracts, more especially to the treatment of myxœdema by thyroid extract—one of the most remarkable therapeutic achievements of this or any other age; also to the elaboration and discovery of new methods of diagnosis and research, such as the employment of the Roentgen rays both in surgery and in medicine; to the value of photography to the clinical physician and surgeon and in the teaching of medicine, &c. But it is impossible to enter into details with regard to these and many other points.

The fourth great advance to which I desire to direct attention is the remarkable improvements which have occurred in our hospitals and medical schools and the increased facilities which have thereby been afforded both for the treatment of patients and for the study of disease and of the various subjects—such as anatomy, physiology, pathology, and therapeutics—which will always be the main foundations on which an intelligent comprehension of disease and the rational treatment of disease must be based. And no better illustration of the advance in these directions could be given than your splendid Leeds Infirmary and your most admirable medical buildings. The improvement, too, in the *personnel* of our nurses and in the nursing arrangements both in our hospitals and in private practice is a striking feature of the period under review.

In consequence of the great development which has taken place in every department of medicine and the allied sciences it necessarily follows that the medical student of to-day has much more to learn than had the medical student of 35 years ago. But against this, which may appear to you to be a disadvantage, you must remember that the facilities for learning are now much greater and the methods of instruction are much more complete and satisfactory. Further, the very increase of our knowledge by explaining many things which were previously obscure has made the process of learning much easier, provided always that you pursue your studies in the right manner—and here I would say, avoid cramming as you would avoid the Evil One, try to understand the "whys" and "wherefores" of things, be practical, do not be content with a mere book knowledge, guard yourselves against acquiring facts in a routine and parrot fashion, bring your intellect and reasoning powers to bear upon everything which comes before you, and be thorough.

But the question arises whether teachers and examiners and examining boards should not recognise the fact that some definite limitations should be placed to the amount of knowledge required of the average medical student for the purposes of the ordinary pass examination, in some of the subjects of the curriculum at all events. It seems to me that notwithstanding the addition of an extra year to the curriculum there is still a danger of the preliminary and scientific subjects crowding out the more practical and clinical subjects. One must never forget that the end and object of the medical curriculum is to give the medical student the knowledge which will enable him to practise his profession; that medicine is an art as well as a science; that for the purpose of practice mere scientific knowledge and book knowledge are of infinitely less importance than practical knowledge gained in the dissecting-room, in the laboratory, in the post-mortem theatre, and, above all, in the wards of the hospital. I never neglect an opportunity of impressing upon medical students the paramount importance of clinical study and the desirability of their making themselves familiar during their student career with all the methods of diagnosing disease and, so far as their opportunities in hospital and dispensary practice permit, of dealing with diseased men, women, and children.

Well, gentlemen, from what I have said you will have gathered that, in my opinion, the medical student of to-day enjoys many advantages which were lacking to the medical student of 35 years ago. As I have already stated, you are, I think, to be congratulated inasmuch as you are joining the profession at a most hopeful and encouraging time so far as the prospects of scientific discovery and practical developments and improvements in the diagnosis, prevention, and treatment of disease are concerned. I wish I could say the same regarding your prospects of finding satisfactory openings for practice and of making a decent livelihood during the earlier years of your career as practitioners. In these respects the prospects of the young practitioner of the present day are, in this country at all events, inferior to those of the young practitioner of 35 years ago. The average age at which the medical student obtains a qualification to practise is nowadays somewhat older than it was in my student days, and the young practitioner, however fully qualified, finds it more difficult to get an independent practice. The fact is that the profession is overstocked and that competition is keener than ever it has been before.[2] The same statement applies, I suppose, to almost every profession and to every form of business, but perhaps more forcibly to the profession of medicine than to any other. And while the fees of the general practitioner have not increased, indeed, in some districts have perhaps decreased, while patients are more difficult to get, the standard of living is higher and professional expenses are as great as ever they were before. It consequently happens that under the arduous struggle for existence methods of practice are sometimes resorted to which are anything but satisfactory and which are much to be deplored. This will no doubt appear to you to be a gloomy picture. But I would counsel you to be of good courage and to remember that "every cloud has its silver lining." The profession of medicine has many and great advantages. It is a noble profession; it is, notwithstanding some recent strictures, an honourable, perhaps the most honourable of all professions; it is concerned with questions of the highest scientific interest and affords unlimited intellectual enjoyment for those who choose to cultivate it in the right way and unlimited opportunities for studying human nature—a most fascinating study. There is no man in any walk of life who is more respected and beloved than the trusted family physician; no profession, not even the clerical profession, affords greater opportunities for doing good to one's fellow men; and, looking merely at the

[2] I do not refer to assistantships, for in consequence of the suppression of the unqualified assistant many practitioners have found it difficult to get an assistant or a locum-tenent during the past year.

material benefits, there is, it seems to me, no profession in which a modest livelihood may in the course of time be so certainly acquired provided only that the practitioner is possessed of the necessary qualifications, amongst which I would place good health, a sound knowledge of his profession, steadiness, perseverance, and industry. Further, one must never forget that in practising medicine one has not merely to deal with cases of disease, but with living men, women, and children of like passions and feelings as ourselves, and that the great qualities of tact, gentleness, kindness, and sympathy are quite as important qualifications for success in practice as mere ability and professional knowledge. Let me beg of you, gentlemen, to do your best to cultivate these qualities and after you get into practice to remember the golden rule "to do to others"—both your patients and your professional brethren—"as you would desire to be done by." Spare no pains to do the best that you can for each and every one of your patients, whether rich or poor; act straight; hold high the standard of professional honour; and endeavour, in however humble and limited a way, to do something to add to professional and scientific knowledge.

Abstracts
OF
INTRODUCTORY ADDRESSES, ETC.,
DELIVERED AT THE
LONDON AND PROVINCIAL MEDICAL SCHOOLS
AT THE
Opening of the Session 1899-1900.

UNIVERSITY COLLEGE HOSPITAL.

INTRODUCTORY ADDRESS BY G. F. BLACKER, M.D., F.R.C.S., ASSISTANT OBSTETRIC PHYSICIAN TO THE HOSPITAL, ON "THE FIRST STAFF OF THE NORTH LONDON OR UNIVERSITY COLLEGE HOSPITAL."

GENTLEMEN,—As the deliverer of the introductory address at the opening of another session there is a pleasing duty entrusted to me which goes far to compensate me for the trials of my present position, and that is to bid you welcome. In the name of my colleagues, then, I welcome those of you who are already sharing with us the trials and pleasures of our work at the hospital, those of you who are returning to yet another session of work at University College, and those of you who are appearing amongst us to-day for the first time. Our school at the present moment may be said to be passing through one of the crises of her history. We are uncertain whether the medical school of University College will continue to be associated with the college in which during all the past years its work has been done, and we are equally uncertain what is to be our exact position with regard to the new University of London from which we hope so much. We therefore feel we owe a specially hearty welcome to those of you who have not been afraid to join us at a time of such unrest and uncertainty and who are strong in the conviction that whether our work is still carried on within the precincts of this building with its many associations or whether it be carried on in a new school in another place it will yet retain all that character for zeal and thoroughness which has ever been its distinguishing feature in the past. While it is still, as I say, uncertain as to what will be the future habitation of our medical school it is quite certain that in a short time we shall be bidding "good-bye" to the old hospital building in which our clinical work has been carried on for the last 65 years. Such being the case it may be well for us to look back for a few minutes at the history of the building which to many of us will always recall memories of some most delightful days spent within its walls and at the same time the memories of some whom we delighted to honour during their lives and whose names we shall ever revere now that they are dead. It is good to pause awhile in the hurry of modern life and study, if it be but in a few particulars, the lives of some of the men who have gone before us. Youth is ever a little intolerant of the *laudator temporis acti*, and, indeed, I have no patience with those who hold that the past is ever better than the present, yet the traditions of a school are not to be lightly neglected and we may well feel that we should be lacking in respect to ourselves and our alma mater if we were content to remain in total ignorance of some of those well worthy of remembrance who have preceded us in our work here. Let me carry you back, then, for a short time while we consider the beginnings of our hospital and the men who formed its staff in the year of its opening, 1834. The North London Hospital, as we learn from Mr. Nixon's History, practically made a beginning as the University Dispensary, 4, George-street, Euston-square. The management of the dispensary was in the hands of a committee of the proprietors of the University of London elected by the council. At a special general meeting of the council of the University of London held on Sept. 30th, 1828, the attention of the proprietors was called to the great advantage of having a hospital for clinical instruction attached to the university and under the control of the council. After some little delay a start was made in May, 1833, and on the 22nd of that month the foundation-stone was laid by the Duke of Somerset. In 1840, as further accommodation was urgently necessary, the south wing was completed and opened and at the same time out-patient accommodation was provided. The north wing was built during the year 1846, giving the building its present form.

The staff of the hospital at its opening was as follows. The physicians were Elliotson, Thomson, and Carswell; the surgeons were Samuel Cooper, Liston, and Richard Quain, and the obstetric physician was Davis. The opening of our hospital in 1834 marked a most important epoch in the history of medical education. Medical teaching at that time was mainly in the hands of the private schools, anatomy was almost solely taught in them and so too were many of the other subjects. At this time the system of election to the staffs of the large hospitals was a most vicious one. It was the custom for the surgeons to take private pupils or apprentices who paid them enormous fees—a thousand guineas was not an uncommon sum—on the understanding that when the time came they should be appointed to the post of house surgeon or house physician under their respective patrons. By this invidious custom many men who were most worthy of obtaining posts upon the staffs of the large hospitals entirely failed to do so and the abuse prevailed to such an extent in the case of the two united hospitals of Guy's and St. Thomas's that nearly every member of the staff was either a relative or had been a pupil of Sir Astley Cooper. At the smaller hospitals a similar system prevailed; an appointment was obtained mainly by the expenditure of money or by intrigue. The degrading system of canvassing the whole of the governors was insisted upon and votes were openly bought and sold; worse than this, the result of an election often depended solely upon the amount of money the unfortunate candidates were able to lay down, since an appointment was frequently gained by the wholesale creation of faggot votes at the last moment until one or other of the candidate's resources failed him. It will ever be to the honour of our college and hospital that this pernicious system was not allowed to prevail within its walls. From the very commencement the appointments were made by selection; and personal intrigue, family influence, and monetary considerations were never permitted to influence the result. Our hospital was the first to adopt the system of throwing the resident appointments open to competition, any student of the hospital being entitled to compete if he had attended a certain number of lectures. Reports of the early examinations duly appeared in the pages of THE LANCET and produced a great effect on the other hospitals in the metropolis. At first an attempt was made to ridicule, but this was of short duration, and at the present day there are few, if any, hospitals in London in which the same just system is not pursued. The influence the New University of London, as our college was then termed, had upon medical education can hardly be overestimated. It is true that other subjects were taught, but its reputation at that time depended mainly upon its medical department. The New University was attacked from all sides, in Parliament, in the pulpit, and in the press. It was denounced as an infidel institution, characterised as "that low

place in Gower-street," and that brilliant writer Theodore Hook went so far as to christen it "Stinkomalee"; but thanks to the courage and ability of its medical staff it flourished in spite of the attacks levelled at it, and for many years it had the largest entry of students of all the medical schools of the metropolis. The senior physician, John Elliotson, was one of the most notable men of his period. He was educated at Cambridge and at the united hospitals of Guy's and St. Thomas's, and was elected an assistant at Guy's. In 1831 he was selected by the council to fill the position of Professor of Medicine in the University of London, and he took a leading part in the establishment of the new hospital to which in 1834 he was appointed senior physician. He was undoubtedly the greatest clinical teacher of his time and his clinical lectures might well be taken for models at the present day. He was one of the first to publish his lectures and cases in the pages of the medical journals and they may still be read with profit in the old numbers of THE LANCET. Many of them were reported for him by the late Mr. Clarke, who was for some years on the staff of THE LANCET and who entered University College when it was first opened. As a reporter he had ample opportunities of comparing the staffs of the London hospitals at that date, and his impressions of them are recorded in his most interesting book, entitled, "Autobiographical Recollections of the Medical Profession," to which work I am indebted for much of what I have to tell you about the original staff of our hospital.

Elliotson was one of the first in this country to adopt the practice of auscultation and to use the stethoscope, and one of the most important points of his clinical teaching was the great stress he laid upon bedside observation by the students themselves. He was a firm believer that

> "Sounds which address the ear are lost and die in one short hour,
> While those that strike the eye live long upon the mind."

According to Clarke, who attended most of his lectures, his clinical teaching was as near perfection as possible. He was a man of some eccentricity of character and made himself notorious in 1827 by discarding the traditional dress of a physician—namely, knee-breeches and black silk stockings—and growing a beard.

In the choice of their surgeons the Council of the University of London were as fortunate as they had been in the choice of their physicians. Robert Liston is one of the best known names in surgery and his association with it sheds lustre and honour upon the North London Hospital. Born at Ecclesmachan in 1794, at the early age of 16 years he began the study of anatomy at the University of Edinburgh. He speedily gave promise of his exceptional ability and at the age of 24 years he was appointed lecturer on anatomy and surgery at the Edinburgh School of Medicine, while he was but 33 years of age when he was offered and accepted the professorship of clinical surgery in the University of London. No doubt he was influenced in his determination to leave Edinburgh by the fact that Syme, his junior, had just previously been elected to the professorship of clinical surgery in that university. But Edinburgh's loss was our gain. It is a remarkable fact that four out of the seven members of the original staff of the hospital were Scotch graduates. The old saying was no less applicable at that time than it is at the present day, that if the Almighty had created not two but twenty millions of Scotchmen they would have conquered the whole world—and mightily hardly they would have used it too, added some malicious wag. Robert Liston was undoubtedly one of the most brilliant operators who ever lived. At his zenith, just before the introduction of anæsthetics, his operations were marvels of dexterity and quickness. His fame attracted large crowds to witness his operations and he was the hero of a devoted following of students. Unfortunately his great popularity was probably the cause of the ill-feeling that existed between Elliotson and himself. Both were greatly liked by the students and each was jealous of the other's success. It is difficult to realise now or to see adequate reason for the amount of ill-feeling that existed amongst the members of the staff. It must be remembered, however, that medical polemics probably never prevailed to such an extent as at the end of the last and at the beginning of the present century. Feeling ran high upon medical matters and sufferers from the "odium medicum" would appear to have been just as intolerant as those afflicted with the "odium theologicum," a complaint which is, as we know, usually characterised by great bitterness. Upon one occasion, at a time when erysipelas was almost epidemic in the hospital, the four members of the staff—Elliotson, Cooper, Liston, and Thomson—were all treating it in different ways. Elliotson was painting the patient with a strong solution of silver nitrate, Thomson was covering the surface with a mercurial ointment, Cooper was attempting to limit the disease by drawing lines with lunar caustic round the margins so as to prevent it spreading, while Liston contented himself with the old treatment by fomentations and the application of flour, but at the same time administered powerful remedies internally. In his lectures Liston was but following the fashion of his predecessors and of the day in being sarcastic at the expense of his colleagues, holding up to ridicule the idea of curing erysipelas by turning a white man into a nigger or by drawing lines horizontally, perpendicularly, or slantingdicularly round a patient's body. It is a curious fact that, like Sir Astley Cooper, although a great surgeon Liston was not a great teacher. He was not a good speaker nor was he a clear writer; he must be judged by what he did rather than by what he said, and judged in this way his reputation is of the highest. As an operator and a practical surgeon he has never had an equal and is never likely to have one.

Anthony Todd Thomson, the second physician, was a man of great learning, but as a clinician he was a marked contrast to Elliotson. He had a world-wide reputation for his knowledge of materia medica and was a most competent lecturer upon medical jurisprudence, but at the bedside he was not so distinguished. He was slow and uncertain in his diagnosis and was in the habit of classing all cases in which he could not, or would not, make a diagnosis as "anomalous," so that it was no uncommon thing to see many of the cases in his wards registered as "cases of anomaly." He was for some 25 years in practice in Sloane-street before he was appointed professor of materia medica in the University of London. No doubt if he had had the same early scientific training as some of his colleagues he would have been one of the leading physicians of his day. He was a man of the most upright character, full of information, and a great conversationalist.

The junior physician was Richard Carswell, afterwards Sir Richard Carswell. Born at Paisley he was educated at Glasgow and took his M.D. degree at Aberdeen. He spent most of his early years studying pathology in Paris and after his appointment as professor of pathological anatomy in the University of London he received a commission to stay in Paris to prepare a collection of pathological drawings. In 1831 he returned to England and was appointed physician to the North London Hospital. In private practice, which he did not enter until 1836, curiously enough he met with but little success. He was more suited for the post-mortem room and the pathological work room than for the sick room, and his success was not commensurate with his scientific reputation. Possibly this is to be accounted for by the many years he had devoted to pathology and by the length of time he resided abroad. As a graduate of Aberdeen one would have anticipated for him a greater measure of success. It is, I believe, a fact that few, if any, Jews are to be found in Aberdeenshire. There is a story to the effect that on one occasion a party of Jews set out with the intention of settling down in that county. A short time afterwards they were met returning by some of their compatriots and to the anxious inquiries as to why they had not stayed made no reply but raising their hands in astonishment, exclaimed "Holy Moses! we have found the lost tribes." Is it little wonder, then, that the majority of Aberdonians do exceedingly well wherever they may be. Not so, however, Richard Carswell. In 1846 he gave up private practice, resigned his professorship, and accepted the position of physician to the King of the Belgians. He will ever be remembered as the author of that magnificent collection of drawings on pathological anatomy which for artistic merit and fidelity have never been surpassed and which we have had the good fortune to retain in our museum.

Samuel Cooper, the senior surgeon, was a student of St. Bartholomew's Hospital. In 1809 he brought out the first edition of his colossal surgical dictionary. He was fittingly called the Johnson of medical literature. His great work was produced solely by himself and stands without a rival in the history of medical writings. During his life it ran through numerous editions and it is a monument to his memory illustrative of marvellous industry and great erudition. According to Clarke, Cooper was an excellent teacher although a slow and somewhat clumsy operator—he had none of the dash and dexterity of his colleague Liston.

Richard Quain, the junior surgeon, bears a name well known to you as one of the most generous benefactors of this college. When first appointed to the staff he had been for some little time demonstrator of anatomy in the university, his brother Jones Quain, being the professor. It is possible that both he and Jones Quain took part in the preparation of the body of Jeremy Bentham whose skeleton is now preserved in our museum and who died in the year 1832 just at the time that the building of the hospital was first mooted. Some of you may have heard the story of the Bentham oil current at the time. After his death Jeremy Bentham's head is said to have exuded a kind of very fine oil. John Stuart Mill, an ardent disciple and follower of Bentham, visiting Mr. Peacock, a friend of his in one of the Government offices, mentioned this extraordinary fact and suggested that the oil might be of great value since it appeared to be unfreezable and could therefore be employed for oiling chronometers used at high latitudes. "The less you say about that the better for you," replied Mr. Peacock, "because just as we now see in the papers advertisements that a fine bear is about to be killed for its grease so we shall be having advertisements to the effect that another fine philosopher is about to be killed for the sake of his oil." Quain was a cool and cautious surgeon but resembled some of his colleagues in being a man of strong feeling and somewhat hasty temper. He will be best remembered as the author of that magnificent work upon "The Arteries of the Human Body."

Of the obstetric physician, Davis, there is little to be said. He acquired a large obstetric practice and he is a historical personage inasmuch as he attended the Duchess of Kent at the birth of Her Majesty the Queen.

Such, gentlemen, is a short account of the men who helped to make the reputation of University College Hospital—a reputation which in our new hospital we shall find it impossible to excel and which will require all our zeal and energy if we are to equal. At a time when it can be but a matter of a few short months before our old hospital is razed to the ground to make way for that magnificent new building so soon to take its place, and when it is quite possible that University College will again be merged into the University of London it is, I think, fitting that I should recall to you some of the influences that University College and University College Hospital have exerted in the past and the memories of some of the men who played so important a part in founding its reputation. As I have already pointed out the influence of our college and hospital in their early days upon medical education was of the very highest. For many of the advantages they now possess, for many of the advances in the methods of medical education, and most important of all, for the abolition of that disgraceful monopoly of hospital appointments by money and family connexions, medical students will ever have to thank the "low place in Gower-street."

Some of you may complain that I have devoted no part of my address to advising you as to how you should perform the new and novel duties upon which you are entering. I will at once admit my omission, but I felt that I could place before you no better incentive to work than a recital of some of the memories and traditions of our school. However, I would have you remember that it is not possible for us ever to rely upon the traditions of the past; it is necessary for us to build up traditions of our own. The staff of the North London Hospital in 1834 could never have brought our school to the high place it then held amongst the medical schools of the metropolis if they had not received loyal support from their students. Hard work and enthusiasm on the part of the teacher is of little avail unless it be accompanied by similar qualities upon the part of the taught. London is a city poor in public monuments, but our hospitals are monuments of charity and generosity such as no other city in the world can show and our new hospital will be an example of private munificence well worthy of being placed alongside the magnificent foundations of Guy's, St. Thomas's, and St. Bartholomew's Hospitals. It will be our duty, gentlemen, to see that we make a good use of the opportunities afforded to us by that magnificent building when it is completed and it will be our duty to make our work in that new building worthy of those traditions of University College and our present hospital, some of which I have inadequately attempted to lay before you. I would remind you that as medical men you are called upon to play a two-fold rôle. It is your duty not only to acquire as complete a knowledge as you can of purely professional matters, but also to seize every opportunity of improving your general education and of acquiring a knowledge of the world. Your success when you take your place in life will depend as much upon the latter as upon your professional attainments. You are commencing your career under the most favourable circumstances, and, though no doubt the competition in the medical profession is ever increasing, yet the opportunities afforded you of fitting yourselves to emerge successfully from the struggle are greater now than they ever were. At the same time you must remember that more is expected of you, since the education of the general public in scientific matters is much higher now than it was a few years ago. If you will but make good use of the opportunities afforded you, you will have no difficulty in acquiring a sound knowledge of medicine and surgery, but at the same time you should make it part of your education to cultivate a healthy interest in all the many details of life that you will meet with outside your profession. It is by no means certain that a man's business is the most important part of his life, says Robert Louis Stevenson in his most fascinating "Apology for Idlers." Perpetual devotion to what a man calls his business is only to be obtained by perpetual neglect of a great many other things. It is well to remember the old saying which tells us that if a man reads too hard he will have little time for thought, and Robert Hall's summary of a certain learned but dull personage, "He had so many books upon his head that they pressed too much upon his brain." He is but a poor doctor whose sole attainment is his knowledge of physic.

If it were but possible one would wish to endow you all with some of the clinical insight of Elliotson, the manipulative dexterity of Liston, the capacity for long-continued work of Samuel Cooper, the erudition of Thomson, and the powers of observation of Carswell. But even if it were possible to make of you such paragons of all the professional virtues your success in life would be by no means certain. It is sufficient to look at the lives of Elliotson and of Liston to demonstrate the truth of what I say. Who can doubt but that if Elliotson had been endowed with a little more common sense he would never have fallen a victim to the impostures of the O'Keys and other charlatans in mesmerism who led him to his ruin; while if Liston had been but a better exponent of the Art of Living he would not have given way to those petty jealousies and personal quarrels which did so much to embitter his life and to spoil his reputation as a man. If we are to draw a lesson from the lives of these two most eminent members of the first staff of our hospital it will be that while you should strive with all your might to emulate their skill and professional attainments you would do well to avoid those faults of character and temper which did so much to mar their otherwise brilliant careers. I could wish for you, gentlemen, no better result of your labours here than that you should set out with steadfast steps along the straight highway which leads to professional eminence and professional success and that you should yet have found time to dawdle for a while in the pleasant by-path called Common-place Lane and thus have early attained to the Belvedere of Common Sense.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.

INTRODUCTORY ADDRESS BY MRS. GARRETT ANDERSON, M.D., DEAN OF THE SCHOOL.

MRS. GARRETT ANDERSON said: "An introductory address should give to new students a word of welcome and some indication of the method to be pursued in the study of medicine. Speaking broadly the work in a medical school may be divided under four heads: the study of the healthy body; the study of disease; the study of all the methods for investigating or curing disease; and the art of applying these methods. The study of the problems of life and of disease is no longer a matter of learning from books and repeating from memory. The experimental method has revolutionised the teaching of physics, chemistry, physiology, and pathology. Large and costly laboratories are now absolutely necessary if the students are to keep up with what is required of them by examiners. There can be no doubt that the experimental method of teaching is the true one, whether much or little

of any subject is wanted as a foundation for the scientific study of medicine.

"The study of pathology, or the causes and effects of departures from health, ought, if possible, to precede work in the hospital wards. The student should know what disease is before she attempts to recognise it in individuals. All honest quackery is based upon complete ignorance of pathology; dishonest quackery on the conviction or the hope that the patient is completely ignorant of it also. In studying how to investigate the meaning of symptoms in a patient the best rule is to look at everything and to guess at nothing. In the words of Sir William Gull, 'We make many more mistakes by not looking than by not knowing.' The organisation of the Royal Free Hospital has made great progress in the 22 years which have elapsed since women were admitted as students. It is a very difficult and complex business to change a hospital that has been without students into a first-class hospital school. Students want a great deal and it is no easy matter to provide properly for them. When they are no longer students they want from their hospital the opportunity of gaining experience as practitioners. Much is being done at the Royal Free Hospital in this direction. The influence of competition is now beginning to be seriously felt by the schools which admit women, and it is an influence which will be felt more and more as time goes on. Students will naturally and properly do the best they can for themselves in choosing a school. They will be guided in their choice partly by what they want—e.g., the London University degree or something less ambitious—partly by what they can afford, and very much by the facilities for hospital practice and experience offered by the various schools. As to the cost of a medical education people get as a rule what they pay for, neither more nor less, and if a medical student wants a great deal of the best teaching it will cost more than the minimum of teaching of a less ambitious type would. The hospital that gives resident posts to women graduates will be noticed very favourably by students.

"The London School of Medicine for Women is now being rebuilt. The council believe that no finer set of laboratories and lecture rooms could be shown at any school of the same size in the United Kingdom. £15,000 have already been spent on the building and £12,000 more have to be spent. The wing now begun will contain 17 sets of students' rooms besides common room, refectory, and library. It is to be hoped that the work will be completed next year and that the debt on the building will be gradually extinguished. No apology is necessary at this time of day for the study of medicine by women. It is now pretty generally recognised that women have exactly as much right to practise medicine and to support themselves by doing so as men have. They are doing excellent and highly skilled work in medicine proper, in surgery, and midwifery in almost all parts of the world, and so long as their work continues to be good they are sure to prosper."

CHARING CROSS HOSPITAL.

INTRODUCTORY ADDRESS BY MITCHELL BRUCE, M.D., F.R.C.P., ON "THE OUTLOOK IN MEDICINE."

DR. MITCHELL BRUCE at once advanced the proposition that the outlook in medicine as a useful art was hopeful at the present time and the first evidence which he submitted in support of that proposition was that the scientific method was now being pursued in every department of medicine.

The discovery and study of the relations of micro-organisms to disease were unquestionably the most important features of the medical sciences at the present time, for the more we applied their results and were guided by their teachings in practice the more fully were their truth and value demonstrated, and, as a natural consequence, preventive medicine—public health—had received from them an enormous impetus. It appeared to be now practically certain that not the living organisms but the chemical products which they manufactured were the immediate causes of infection—poisons steadily formed by the bacteria and continuously passed into the blood; and these poisons had been separated as definite substances which could be shown and tested—not the hypothetical influences of 25 years ago. From this new position which scientific medicine had won the whole field of pathology was being re-surveyed. The study of micro-organisms and their effects on the body had now taught us that the maintenance of health consisted in a resistance to the efficient causes of disease which were universal; that the vigour of this natural resistance was differently developed in different individuals; that disease did not arise unless the natural resistance was overcome by the efficient cause, whatever that might be. The germ, the seed, was but one factor of the origin of disease; the soil was the second, and it had also to be reckoned with.

The discovery and study of the provision for combating destructive micro-organisms had inaugurated a new era in medicine in respect both of prevention and treatment. The microbes of disease did not have it all their own way in the human body. From the moment of their invasion the ultimate cells of the blood and organs rose against them and produced a chemical antidote to their poisons—antitoxins to the toxins—and by-and-by, if the patient survived sufficiently long, the antitoxins increased sufficiently to destroy the toxins and recovery was the result. Naturally it had occurred to the pathologist to ask the physician, Why should we not hasten the formation of antitoxin in the blood so that an infectious disease shall terminate not after a week but after a day? This question had been answered practically by the injection of the antitoxins of diphtheria and other diseases which saved the lives of so many persons every year. These antitoxic serums were obtained from the blood of animals that were slowly, steadily, and safely to themselves infected with the different diseases, until after so many months their blood-serum was laden with the antidote and fit for injection into the human patient. Passing on to the facts, events, and processes of disease "in being," the lecturer pointed out that Lister's immortal discovery, which not only enabled them to perform all the old operations with a vastly increased assurance of success, but also permitted them to deal with injuries and diseases which a few years ago were regarded as hopeless, was the complement of that other historical achievement of medicine in the nineteenth century—the use of anæsthetics. Of late years it had been possible to appreciate, as never could be done before, the character and power of the constructive factor of disease, which took the forms of repair and convalescence. It was an enormous stride forward to know on unquestionable evidence that, speaking broadly, one half of what we called disease was a spontaneous attempt, more or less successful, at recovery, and to be convinced that we must understand and respect the conditions of its recuperative factor as well as of its wholly morbid factor in order to attack disease rationally and with hope of success.

So far the lecturer had spoken of the hopefulness of the outlook of medicine when viewed from the professional side. But it had also a non-professional side. In the matter of carrying out reforms, whether personally in their homes or comprehensively by framing and administering sanitary law, the public was the ultimate support of preventive medicine. Did the present and prospective disposition of the public towards medicine augur well for both? After gratefully acknowledging the liberality of the public to hospitals, particularly to Charing-cross Hospital, Dr. Mitchell Bruce pointed out that with support of hospitals, if hospitals were properly served, went support of scientific medicine and indirectly the support of pure science itself. There were many signs of increasing public interest in medical science and its practical applications. In one great provincial city after another hospitals had become teaching hospitals, these had grown into colleges, the colleges were being bound together by grants of local universities, and with their charters had come endowments, the inhabitants taking an intelligent interest in these noble institutions, at once an evidence and a means of intellectual and social improvement. Would London ever do the same in a concerted and successful fashion? When had they heard of an Owens or a Whitworth immortalising his name by a noble gift to the University of London? The metropolis appeared to possess no municipal pride in this direction.

But there was another and more intimate way in which the non-professional community were taking a rapidly increasing interest in medicine. Sanitation meant public action and public health, and this meant public money and municipal, county, and parochial government. They were heavily taxed to secure a sufficient supply of pure water, to provide for the public inspection of milk, meat, and bread and other food, to supervise the erection of every new house in the town, to carry out the

Factory Acts, to maintain the sewerage and removal of dust and rubbish efficiently, and to provide public baths and washhouses and parks, and many of these sanitary measures were discharged by the district authorities under their own corporate control. What was of more concern to the intelligent Briton, whose house was his castle, the current of sanitation had already carried the medical officer of health into his home and had threatened his individual liberty. Prevention meant interference with the healthy man—a very grave step socially; and when he was smitten with typhoid fever his case was notified by the medical man, his house was inspected (in some countries it was publicly proclaimed to be infected), and he might even be carried off bodily to the isolation hospital. All this was now compulsory. Thus, directly and indirectly, by influences that reached themselves and their most cherished privileges, their pockets and their domestic and family interests, the public were now compelled to learn for themselves what sanitation and the laws of health and disease meant. At the meeting of the British Medical Association the Bishop of Winchester, in his eloquent sermon, said that never in England so markedly as now did intelligent people listen to the man, or the pupils of the man, who had unlocked hidden secrets of physical life; that if the age in which they had grown to manhood and spent their earlier energies was to be known in history as an age of physical science, it seemed not unlikely that social science, in the widest meaning of the term, might be the distinctive imprint of the years with which another century began, and that for guidance as that age opened people would look to the men who had stamped their "character" upon the popular thought and teaching of the last few decades. The Vicar of Portsmouth reminded the Association that it was being recognised more and more, not only by the profession but by the public, that disease and its treatment was a social question, and that the causes and remedies of disease could not be separated from questions of social and public policy. These statements were evidences of the increasing recognition of the place and power of medicine and public acknowledgments of the duty of the public to meet them halfway and to give them intelligent and loyal assistance. It was clear, then, that the position of the profession as a profession and the work of each of the students would be something different from those of their predecessors. 20 years ago students learned medicine with a view to practising it as successfully and scientifically as they could, to become the trusted and faithful friends of sick persons of every rank of life who might ask their assistance, to take an honourable place in the community wherever their lot might be cast, and to play an active and useful part in social reforms like their neighbours when the occasion arose. How different was the prospect before each of them now, how much greater were the authority and powers which they would wield when they became practitioners, how much more grave would be their responsibilities, how much need for increased intelligence, tact, patience, consideration, high sense of duty, and therewith the development of the faculties demanded in the conduct of public business! How did these considerations bear upon their course of study?

Firstly, the public had to be taught to appreciate the advantages of sanitation and this could be best done by beginning with the young. Hygiene must be made to enter into the existence of the child along with his letters, not by requiring him to master text-books on hygiene but by taking care that his school at least, if not his home, was clean, its atmosphere pure and fresh, and its furnishings pleasing or even beautiful; by providing him with abundance of water of which he might drink and in which he might wash, and with sufficient open space for wholesome recreation. A child who spent several hours a day in the enjoyment of such surroundings could not fail consciously or unconsciously to loathe dirt, disorder, and ugliness at home and would surely grow up with the spirit of cleanliness within him. The profession had also many opportunities of educating the adult members of the community in the ways of health. Sanitation was like religion in this respect: people might profess it as a body, but be moved by it and practise it very little personally. When they came to have patients and to enter their houses on their daily rounds they would discover that the word "sanitation" conveyed to most people the notion only of drains. How few windows were to be seen open. He often wished when he entered the sick-room of a poor person smitten with typhoid fever or phthisis and read the illuminated texts over the bed that there were also written up a few sanitary commandments, such as "Cleanliness is next to godliness," or the words of the immortal Florence Nightingale, "Windows are made to open; doors are made to shut."

Secondly, they must be prepared to take part in the social life of the community and they would have many opportunities of doing so at Charing-cross Hospital with its medical society and its different branches—the athletic, cricket, football, musical, debating, and photographic—where they could attend business meetings and social meetings along with their seniors, take an active part in the proceedings, accustom themselves to speak in public, and, in a word, prepare themselves to become men of public spirit and public usefulness.

Lastly, there was no reason why the student of chemistry and biology should not open his mind at the same time to the elevating and refining influences of literature, of history, of modern languages, and of the fine arts—those parts of his mental equipment which enabled a man to enter with success into the discussion and management of the affairs of his personal, domestic, and social life; which endowed him with what were known as judgment, intelligence, tact, and clear-headedness; which contributed so much to the formation of high character and sound moral principles; and which secured for him public respect and confidence.

ST. MARY'S HOSPITAL.

INTRODUCTORY ADDRESS BY H. G. PLIMMER, M.R.C.S. ENG., F.L.S., PATHOLOGIST TO THE HOSPITAL AND LECTURER ON PATHOLOGY AND BACTERIOLOGY IN THE MEDICAL SCHOOL, ON "THE STUDY OF MEDICINE."

GENTLEMEN,—The honour of opening the medical session at St. Mary's Hospital this year has, by the invitation of my colleagues, fallen to my lot and I have chosen a general theme, which is suggested by the present occasion, upon which to speak to you—that, namely, of the study of medicine generally and on some of its motives and methods in particular.

The study of medicine is divided into two great divisions—the first relating to practical usefulness and the second to scientific investigation; and each of these divisions can be attractive to men who are entering life according to their disposition of mind. These dispositions of mind are both equally noble because each really is, or ought to be, exclusive of selfishness; and each furnishes a man with a motive incitive to work above and beyond the immediate object of making a living. It is usual to tell students that the profession of medicine is the best and noblest of professions, but it is not in itself so. It is only as noble as you choose to make it, which is quite a different thing. Now with regard to these two great divisions of medicine I shall say but few words concerning the first because it is better and more intimately known. Its object is the care for the bodily health of men, its main point the maintenance of health or the restoration to health. We come into contact with it from outside from our childhood's days of powders onward, whenever we come under the care of the medical man, and its results are more recognised, dealing, as they do, with utility and with the doing of obvious good to others. Moreover, you will principally be trained in this special division of medicine because most of you, from preference or from necessity, will have to practise it. Your method of learning will be roughly but essentially this. First, there will be a foundation laid in you of anatomy and physiology, with as much of related sciences as is necessary, then you will begin to study sick people and their diseases and the methods of treatment. In this part of your work you will be guided in what you do principally by what is called clinical experience—i.e., by a collection of information about sick people and their diseases which is derived, according to your powers, from your own observations, but principally from the recorded observations of others and which you will have to carry abopt with you in your memory. This clinical experience is the chief point in your education as physicians, and the power of making a true and accurate diagnosis is principally what separates the cultivated physician from the quack. Later you will come into contact with patients, first in the hospital and then in either what is

called consulting or general practice, and here you will meet them on quite a different plane. Most of you will necessarily have to go into general practice, at any rate for a time, and you must remember that it is not well to learn to despise it, for it is the general practitioner to whom above all others the privilege is granted of really serving the sick.

This brings me gradually in sight of the second of the great divisions of medical study which I mentioned earlier to you—namely, the investigation of the phenomena of Nature in its scientific aspect apart from utility, or, at any rate, direct utility. You must remember that the most useful parts of science have been investigated for the sake of truth and not for their usefulness. I want now to direct your attention more particularly to this scientific side of medicine and to some of its motives and methods, and to indicate to you a little of the work that has already been done in this region and the infinite possibilities there are in it for future work. In olden times, that is, until quite recently—for the palingenesis of medicine is younger than many of us—man was looked upon as the purpose and centre of the universe, whereas now he is known to be only a part and a product, so that all the older medicine directed its efforts towards man from that point of view, and it is only during very recent years that what we might call medical science, apart from utility, could be at all possible. All sciences have had to pass through a stage when their principles rested on observation, and every science has had to have recourse to experimentation for its advance and has had to control its observations by experiment. In pathology, owing to the complexity of the condition, experiment is most necessary since a simple pathological observation can never carry conviction into anyone's mind unless it be supported by experiment. The etiology, for instance, of those diseases only which can be reproduced at will can be accurately regarded as known. This brings us to the logical conclusion that our ignorance of etiology must be very great, especially about those diseases which cannot be reproduced by any means at present in our power, even when the symptoms and pathological anatomy of such diseases are well known. As an example think of the difference in our exact knowledge of two well-known diseases—namely, tetanus and cancer. In tetanus the conditions of its occurrence are fully known, its pathological physiology has been worked out, means are at hand to prevent its appearance even in an infected animal, and this is simply because the bacillus causing the disease has been isolated and because the disease can be experimentally reproduced. In cancer, in spite of an enormous literature, our knowledge is minimal, because it is a disease which cannot yet with certainty be reproduced in animals. All that observation can do in cancer has been done and our only hope is in patient and continuous experimentation and there are already indications that the experimental work that is being done all over the world on this grave question will eventually bring us the truth.

Now at last it is becoming recognised that medicine has the possibilities of a science in it, of an experimental science, and that it is at present dependent for its progress on laboratory work and especially on experiments on animals. You know that on this subject in England there is a very strong feeling and that in consequence all experimental work is surrounded with much difficulty. It seems reasonable to say that man has, at any rate, as much right to use animals for science as for food or war and their use for these latter purposes is not made the reason, as in the former case, for a virulent crusade in which truth is completely swallowed up by false sentiment and by, what is even worse, untruth. The partisans of this crusade, however, do not apparently object to experiments on man. What more gigantic experiment, for instance, could we find than that which, thanks to agitators, is now being tried on thousands of English children with regard to small-pox? The experiments of fanaticism and ignorance are made on a large scale truly and with an almost total disregard of human life. Moreover, these ghastly lessons are repeated over and over again, as the public will never learn lessons from them. But the experiments which scientific medicine has undertaken are of a different order. By experiment the *contagium vivum* of many of the most deadly diseases has been isolated and thereby is fulfilled the first condition, for the great ideas and principles of prophylaxis have been attained.

During the last 20 years many of the causes of some of the most terrible scourges of man and of animals have been isolated and can be grown and dealt with as easily as any ordinary plant. The organisms of phthisis, tetanus, pneumonia, erysipelas, diphtheria, and many more are now accurately known to us. We can study their habits, their functions, and we know exactly how they can be killed outside the body. Think of the practical importance of this in one case only—that of phthisis. Since we have known the tubercle bacillus the mortality from phthisis has steadily diminished simply from the fact of our knowing of its existence and of knowing how to destroy it and to avoid it in a few gross ways. Again, this branch of work has shown us to what the various symptoms of infectious diseases are due; experiment has shown us that the symptoms are due to the poisons produced by the bacteria and that these symptoms can be reproduced by the poisons alone with marvellous accuracy. These facts are stirring chemists to investigate the nature of these extraordinary bodies, so that pure vaccines and antitoxins may be made scientifically which we can use as protective or curative agents against the specific microbes.

There is one name in connexion with this work which must be mentioned—that of Pasteur—whose career is almost without parallel. Here was a man who is the best example of a scientific man, who worked primarily for science without any ultimate practical object. He knew no medicine and no surgery, yet he taught us what infectious disease is and he opened infinite fields of work for the biologist, the chemist, and the scientist. He has laid the foundation of a branch of science which has already revolutionised medicine, surgery, and chemistry. He has taught us medical men what great results can be got from exact experiments when applied to medicine. He himself conquered almost single-handed the scourges of anthrax, of quarter-evil, of rouget, of fowl-cholera, and hydrophobia; he wrestled with the phantasm of the spontaneous generation of life and laid that spectre for ever at rest. We are proud that some of the seed he sowed in such amazing quantity fell here in England on good ground and that by following and applying Pasteur's methods Lord Lister was able to teach us how to banish the diseases which formerly followed so constantly on wounds and operations.

MIDDLESEX HOSPITAL.

INTRODUCTORY ADDRESS BY JOHN MURRAY, F.R.C.S. ENG., ASSISTANT SURGEON TO THE HOSPITAL.

MR. MURRAY, after a few words of welcome to the students, offered his congratulations to those who had recently joined the hospital on their choice of a profession. He proceeded to say that although the amount of work that would be required of them was great and not without difficulties they would find ample compensation in the absorbing and ever-increasing interest of the work. He pointed out that the medical profession was one which presented so many different phases and opened up such innumerable possibilities that anyone liking the work could not fail to find a means of practising his profession under favourable conditions, and in this way the career they had chosen had in his opinion greater advantages than any other. Whether subsequently their interests would lie in the direction of practical work or in that of purely scientific research they would find ample scope for developing their talents in either direction, the object in each case being the same—the prevention and cure of disease and the alleviation of pain and suffering. He dwelt upon the importance of attaining a high standard of general education before commencing professional study and on the important bearing that a general culture had on medical training. By such an education the tastes and character of the student were formed and the intellectual faculties were more fully developed, so that he was better able to assimilate what he had learnt and to take an intelligent interest in his work.

After urging the students at the beginning of their medical studies to take up each subject in its proper place and at the appointed time, and warning them of the difficulties that would arise if they once allowed their work to get behind, Mr. Murray went on to say that anatomy and physiology formed a fundamental basis on which all their future knowledge had to be built, and that if they neglected these subjects they could not expect to take a prominent place in their profession. He insisted on the importance of practical work and on the value of knowledge gained by their own observation, drawing attention to the increased facilities now afforded to them in this direction by the improvements and

additions which had recently been made in the school buildings. He pointed out that the early years of study would be spent in acquiring facts and committing them to memory, but that when they commenced their hospital work they would begin to apply those facts which they had learnt and they would be called upon to exercise and develop their powers of observation. He urged upon them the importance of cultivating the habit of observing accurately and drawing correct conclusions from their observations and advised them to accustom themselves to rely on their own efforts and to acquire the art of thinking for themselves, since facts thus gained were infinitely more valuable than knowledge obtained in a condensed form from others. Emerson had said: "Insist on yourself, never imitate; your own gift you can present every moment with the cumulative force of a whole life's cultivation, but of the adopted talent of another you have only an extemporaneous half possession."

The lecturer then pointed out the benefit which the student would derive by devoting all his available time to practical work in the wards of the hospital when acting as clerk and dresser; and while recommending reading in conjunction with their work he called their attention to the advantages to be gained by careful and systematic note-taking. He advised students to seize every opportunity of investigating cases for themselves but always with due regard to the feelings and susceptibilities of the patients, and warned them against the needless anxiety that might be caused by thoughtless discussion in the presence of a patient. Mr. Murray concluded by saying that everyone connected with the hospital contributed in some way or other towards the reputation of the institution to which he belonged and that it was the duty of all to endeavour to the utmost to uphold the honour and prestige of his hospital.

THE ROYAL VETERINARY COLLEGE.

INTRODUCTORY ADDRESS BY G. SIMS WOODHEAD, M.D., F.R.S. EDIN., PROFESSOR OF PATHOLOGY AT THE UNIVERSITY OF CAMBRIDGE, ON "THE TRAINING OF VETERINARY SURGEONS."

[AFTER referring to the close intimacy which had existed between the Principal, the Professors, and himself for some years Professor Woodhead said:—]

My one claim on you for a consideration of my words must be that I can approach the question from an outside standpoint and that at no point can merely personal interest (in the professional sense) come in to bias my judgment. In saying what I have to say I speak merely for the honour of our science, for though our patients are not the same and our methods may in certain features differ the principles which underlie the prevention, diagnosis, and treatment of disease—whether in man or beast—are essentially and fundamentally the same; this may be seen in the approximation of our methods during the advancement of the knowledge of disease. It has sometimes been said that the medical man who has to diagnose and treat disease in the human subject enjoys great advantages over the veterinary surgeon who has to treat a patient unable to express in words the pains and symptoms that oppress him. Now is this really the case? As we get to know more of disease we gradually come more and more to minimise the importance of subjective phenomena and to rely more fully on accurate physical diagnostic methods. The physician who has to treat the young child is in the same position as the veterinary surgeon, but if we refer to the literature of medicine we shall find that in no department have greater advances been made and diagnostic methods been better applied than in children's diseases, and our best physicians are those whose early training has consisted largely in the diagnosis and treatment of disease in children—they are more self-reliant, more accurate, and have a wider knowledge of those small but important points from which inferences may be drawn than are those who have had no such training; the man who relies upon the so-called subjective phenomena of disease has usually a tendency to carelessness and to accept and treat symptoms in place of finding out the pathological lesions upon a knowledge of which only can any permanently successful diagnosis be made and treatment be carried out. Gentlemen, from the scientific and practical point of view you have the advantage; you must answer your own questions to the patient, you are thrown on your own resources and must rely on your mother wit, trained or untrained. To you the thermometer, the sphygmograph, the microscope, and the test tube are not merely playthings or for outside display. The results obtained from them along with your observations will be the only foundation on which you can build, and it is for this reason I say that you as a scientific profession have the advantage over us. Such being the case, whilst here you should avail yourselves of every opportunity of fitting yourselves to do your life's work scientifically and accurately. You are not here merely to learn routine work; you are here to be trained in scientific methods, to learn how to handle patients, the principles of your practice and the principles of treatment—not to go out into the world with heads crammed full of statistics and details, but with a knowledge of how to observe, how to reason on your observations, to find out what the conditions of disease are, and what inferences as regards treatment you must draw when your observations are complete. You must interpret, not remember, statistics; you must compile and reason from them, but do not be mere receptacles for them. Then, with regard to the physical signs of disease you should be able to picture in your mind the pathological processes that their presence indicates. It is your work by the use of those signs and symptoms to draw such a picture and to be able to determine the probable further course of the disease and how to effect if possible its abatement.

Professor Woodhead then gave as an example a case of pneumonia, a simple one, but one which showed how interdependent organs and processes are upon one another and how necessary it is that the whole history of a disease should be taken into consideration when it is being diagnosed and treated. He showed very clearly that not only the lungs but the liver and the heart muscle also had been poisoned. Professor Woodhead continued:—

The man who knows this when he goes into practice knows how to safeguard the interests of his clients. He points out how the digestive processes associated with the functions of the liver are going on but feebly and diets his patient accordingly; how the heart is weaker than usual and so rests his patient and regulates its exercise to allow of a gradual restoration of strength before he puts any strain upon the heart muscle that would do it damage. I wish to point out that if a man will attend carefully to his instruction in the College he will gather knowledge in a week which may be as valuable as years of experience and he will start his professional life with principles which will enable him to commence where his predecessors have left off. Whilst you are studying here I beg of you to follow most closely the teaching of your professors. Each one of you must be quite prepared to find when you come to look into matters for yourself that you will not always find yourself in agreement with some of the teaching now given by the professors and this for two reasons—first because by that time new light may have been shed on the subject, new light from various sources by means of which most of what is now a deep shadow may be more fully illuminated. Secondly, because you must necessarily develop some individuality and some original mode of looking at the subjects in which your life's-work and interest lie. You will contribute some epoch-making discovery which you may say is all your own, but which the world will say that you shared with those teachers whose knowledge you may imagine you are superseding. Professor Woodhead then pointed out that this difference of opinion should never be allowed to encourage a single thought of disparagement of the learning and accuracy of their teachers and insisted strongly on the necessity of first acquiring at college a sure foundation on which to commence to build up the superstructure of a life's work; he pointed out that the principles offered them were the outcome of the experience of many generations of workers and teachers. As a further example of the differences of opinion that might arise and the almost kaleidoscopic change of knowledge he said:—

In recent years Metchnikoff by his brilliant work on phagocytosis has drawn attention to one of the processes observed in inflammation in such a manner as to make some people believe that phagocytosis and inflammation were practically convertible terms. If you read the recent literature on the subject of inflammation you will be astonished to find that in all probability your Principal—I ask his pardon for using this illustration—will devote perhaps less than one-sixth of the whole of his lectures on inflammation to phagocytosis. If you think too much more yourself (I mean in

the conceited sense) at this period, you will wonder why this great present day question of phagocytosis does not receive more attention. If, however, you will keep your thoughts to yourself until the lectures are completed you will probably never express them at all, for you will find that since John Hunter's day and since Waller, Wharton, Jones, and Cohnheim made their wonderful contributions to our knowledge of the behaviour of the white blood corpuscles in their passage from the blood-vessels into the surrounding tissues slight additions to our knowledge of the subject have from time to time been added. Cohnheim's foundation was so sure that although these additions have filled in gaps, little or no essential modification of the work which he did has been necessary or even possible. Now your Professor knows all this; he has passed through the mill of his reading and experience, and as the result he has been able to select what is worth studying, to lay stress on important points, to build up as it were for you a picture of the processes of inflammation which will serve as a basis for your future work and which you yourselves could only have arrived at after years of careful study. It is well that those who make new observations and start new theories should be enthusiastic—shall I say a little over-sanguine or even one-sided? The things which are near to us and which we study most thoroughly and carefully are apt to block out from our view other important, perhaps more important, matters. When we come to matters scientific our knowledge of the perspective is *nil*, and it takes a long time for us to acquire an accurate working knowledge of. Until that is acquired it is well for us to trust those who have given their lives to its study. Remember, moreover, that you will be assailed by men from all sides who have worked carefully, each in his own little patch of ground, who will tell you that the products of his garden are the only ones worth gathering. Do not believe them. Accept what each has to bring, put it through the mill as you have learned from your professors to do, and then add it to your store of knowledge, fit it into its proper place in the scheme that you desire for your mental discipline, or if you find it worthless throw it aside altogether. We have seen that in inflammation certain people tell you that phagocytosis is everything; others that without chemotaxis there could be no inflammation; others that damage to the tissues is an essential; and others that only when you have a process of proliferation and repair can there be inflammation. You will find that all these factors enter into the question. Each has its importance and plays its part, but you cannot say that any one is all-important in itself or even as a necessary part. The exaggerated importance given to each factor arises out of the fact that many of the processes have been studied on simple protoplasmic bodies in which as yet there is but little specialisation of function. It is assumed that because certain amœboid cells, or even organisms slightly more specialised, behave in a certain fashion when they are exposed to the action of irritants therefore cells which in the higher animals have a similar appearance and perhaps also to a certain extent similar functions must do exactly the same thing when they are irritated. That is only a half truth, but it has so specious an appearance of whole truth that it may deceive the unwary. It must be held that inflammation occurring in the higher or more specialised and complex animals is necessarily a far more complex process than it can be in the less specialised form of animal life. Indeed, in the less specialised animal we can scarcely expect to find more than a very small part of the process which we recognise as inflammation in the higher animals, all of which have well developed blood-vessels. In these vessels are coursing red and white blood corpuscles suspended in a fluid of different composition. Around these vessels are tissues of various kinds (muscle, nerve, &c.) and in all of them are channels and connective tissue-cells and spaces. All these have to be nourished, all are the subject of various kinds of stimulation, all have to get rid of effete matter, and any or all of them may at any time be impaired. Even under normal conditions dead tissue has to be got rid of, whilst much more is this the case when tissues are injured mechanically, chemically, or the like, and new tissue or some substitute has to be developed to take the place of that which was lost. In certain of the simpler cells many of these processes, normal and abnormal, may be seen going on and sometimes we think we understand how they go on, but in the more complex animals in which we have to study these processes we can only guess at the modes in which such processes are carried on, we cannot see any of them. We may know something of the actual resulting product, but beyond that, learnedly as we may talk, our real knowledge is still very scanty. Certain processes that are observed in inflammation of the higher animals, then, so far as we can determine by our observation and analysis of results, are seen to be analogous to certain of the processes observed in simple animals and cells, but it would be a dangerous matter to conclude that the part, or even collection of parts, seen in the lower organism is equal to the whole of the complex process of inflammation as presented in the more highly developed organism. The vessels, then, with their red and white cells, these latter of various form and function, give us something quite different from anything that occurs in the non-vascular animals. One of the essentials of acute inflammation is a process of hæmorrhage outwards into the surrounding spaces or tissues, first of the fluid in the vessels and blood plasma, and secondly of the various colourless and red blood corpuscles, the former not only giving rise to the round-cell infiltration that we see, but in all probability along with the minute blood platelets breaking down to combine with certain elements of the blood plasma to form fibrin. Here, then, we have a something which does not, as far as we are aware, occur in the lower forms of animal life. Beyond this, however, we have a series of proliferative changes which are so widespread in inflammation and can be so readily watched that they are well worth careful consideration. Not only do the wandering cells or leucocytes proliferate, but in a much more marked degree the fixed cells that enter into the constructive process of building up connective tissue, whilst there may also be seen distinct enlargement and then proliferation of the specialised cells composing the endothelial lining of the blood and lymphatic vessels. In addition we have the changes that take place in the more fully specialised tissues, so that it may be gathered that inflammation, however fundamentally simple it may be, is an enormously complicated process when it comes to us and not to be studied in any one of its branches alone. This, gentlemen, is a single example, but you will find that the same truth holds good whatever branch or part of your professional study attracts your attention and demands the expenditure of your brain energy in its study.

Professor Woodhead then commented on the advantages of a preliminary training, not obligatory in the case of their predecessors, and, in referring to the outstanding men of to-day, said that the average power of the profession had never been so great as it was to-day, since the standard of preliminary education had been raised. With reference to its being a mistake to ask for such a high standard of scientific knowledge from the man who was going to be what was called a practical veterinary surgeon Professor Woodhead said:—

We are told that men cannot handle a horse now as they used to do, that they have not the same knowledge of his points, and that their practical treatment of his diseases is not what it was. Now, gentlemen, I do not believe this. That they do not devote so much of their time to the breaking in and management of horses, to the blistering, cupping, and setoning of horses, I may agree, but beyond this I cannot go. The man who is going into the country is the very man who should have his foundations sure and his training thorough, for in after life he is thrown entirely on his own resources and unless he makes the most of his college training there is only too great danger that he will settle down to an early professional life of blunders and losses, and, when experience comes, to one of dull routine and *laissez faire*. Not only are practical veterinary surgeons required but men expert in all that relates to the prevention and treatment of disease. Such men must be trained for the public veterinary service; they have places to fill which are now imperfectly filled by other men and they have a work to do which can be done by them and them alone. All will find that a combination of the scientific and practical such as they obtain here during their course will be essential to their professional success.

Professor Woodhead then contrasted the present practical training with the old system of pupilage to the detriment of the latter and agreed that a man's future career must depend on his very early training and that a man born and bred amongst horses must make, other things being equal, a better practitioner than one who has only come in contact with animals during his four years' course at college. He continued:—

If I were asked to commit a horse of mine to the care of the well-trained college student on the one hand, or to the so-called practical man who has wasted his time at

college or who has neglected his principles in order to devote more time to his practice on the other, I should have no hesitation as to which I should select. I have a theory in regard to the men of my own profession that I think might apply with equal force to yours—i.e., that the best men in the profession will learn anywhere, that the worst are practically hopeless and will learn nowhere, but that the success of the average man depends to a very large extent upon the nature and extent of his early and professional training.

Professor Woodhead then referred to two different schools characterised by different methods and said that from his own observation the so-called practical man appeared for a year or two to get ahead of his more scientific compeer, but at the end of five years there was no comparison between the two men; he thought that if a man's principles and methods were sound and scientific his practice was soon perfected, whilst if these were faulty or absent there was far too great a danger that practice might become mere routine. As Sir Michael Foster had said at the meeting of the British Association the other day scientific men might be commonplace and their methods merely founded on common sense, but science was a glorious temple built by commonplace men and of commonplace materials. He then referred to the danger of looking upon their own work as finality and in connexion with this quoted the well known words of Darwin who said: "What a science natural history will be when we are in our graves, when all the laws of change are thought one of the most important facts of natural history." Then referring to Darwin's work he said that the fact that some of his analogies, of which he cited an instance, could not now be accepted did not render the work any the less valuable. Tradition, which would not stand the light of present-day observation, must go by the board, but let them not be blinded by a too close and continuous application of their mind's eye to what was simply before them. He thought that temporary introspection was valuable. He then quoted three instances to show that although they were called a practical people they did not exhibit that practical spirit in anything like the degree that they ought to expect. For years swine fever had been a scourge amongst them. They had had an elaborate system of inspection and central examination, and of compensation, but how far had they been successful in coping with the disease? He believed that they were going the wrong way to work to get rid of the disease, though he was open to correction on any points of detail. He could not help thinking that the permanent system of compensation had something to do with the continuance of the disease. The fact that the farmers knew that the loss would not be borne entirely by themselves acted, he thought, as a hindrance to any active efforts to prevent the disease. He said that some temporary system of compensation might, no doubt, be just, but it should be for a period only sufficiently long to enable effective measures to be taken against the spread of the disease. With regard to inspection, however worthy the present men might be who carried on the work, they were not fitted for the work which they had to do. He was of opinion that for the actual inspection of buildings and of animals—dead or alive—only a thoroughly qualified veterinary surgeon should be employed. During the time the present inspector was gaining his experience, the lesions and irregular forms of the disease were centres from which infection might be spread broadcast. The present inspector—not a scientific man—could not keep himself *au courant* with most of the recent discoveries as to the pathogenesis of the disease; he must always be behind the veterinary surgeon and never so completely equipped. He asked what inducement had the ordinary inspector to get rid of swine fever? He had been taken from his previous occupation to stamp out a disease by the disappearance of which his present occupation would be gone. This would not weigh with the bulk of men, but in every sphere of life there were a few men with whom that would have a certain amount of weight, even though perhaps unconsciously. He suggested the following experiments: (1) to offer to the inspector of a district an honorarium as soon as swine fever was cleared out and on the disappearance of the disease to appoint the inspector to some administrative Civil Service post in which his salary, present and prospective, should be at least equal to that which he had received as inspector; and (2) that no one except a veterinary surgeon should afterwards be appointed to take charge of the purely veterinary and hygienic inspections in connexion with the outbreaks of swine fever. It would not be necessary that he should be specially appointed but he should be one of a departmental staff in the course of whose work the outbreak of swine fever would be a mere incident. Now that they had anthrax, tuberculosis, swine fever, and similar infective diseases to deal with, the importance of having a large veterinary staff was becoming daily more evident. It might be objected that the standing cost would be heavy, but he was satisfied that it would be a mere fraction, first of all, of what was being paid out as compensation, but more important still of the enormous loss incurred through the ravages of diseases which were to a very great extent preventable. He then referred to the so far successful effort which had been made to get rid of rabies from their midst. The advocate of muzzling would have been laughed at and hooted a few years ago as cruel and no Government would have dared to carry out the behests of such an individual. He held that Pasteur's researches on hydrophobia had been the means of rendering such a course as that recently adopted by the Board of Agriculture at all possible. When hydrophobia should break out again every dog in the kingdom would be muzzled at once and there would not be a rabid animal in the kingdom in six months, instead of the interval before the disappearance of the disease being two or three years as had been the case: universal muzzling would do away with the necessity for Pasteur treatment in civilised countries and in those where wolves did not exist. He concluded:—

I want you to think over these things, gentlemen. When you go out into the world you will have your part to play in advising the course of action to be taken by those who rely upon you for your assistance, and the more solid the foundation of your advice, the more it is based upon sound principles and scientific accuracy, the more readily will it be accepted by those for whose benefit it is offered. How markedly this applies to one of the questions of the hour—tuberculosis. We are gradually coming to see that the spread of tuberculosis is not necessarily according to any one method, but that there are many forms of distribution. We have now got over what may be termed the "time of panic" and we have come to see that it is only by the coöperation of medical men and veterinary surgeons, public administrators, and of those who are interested in the raising of cattle and the supplying of milk that we can gradually eliminate tuberculosis. One branch of this work falls to your lot. You have along with your medical brethren to educate people up to the knowledge of the fact that tuberculosis is a specific infective disease, and you have not only to point out that without the tubercle bacillus there can be no tuberculosis but also to indicate that the tubercle bacillus may be present without giving rise to tuberculosis; you have to show that common as the disease is it is a preventable one and that the first thing to be done is to find out the centres of infection. It is for this reason that you are so thoroughly instructed in the use of tuberculin; you are to show the farmers that it is to their interest to have nothing but healthy stock. I am speaking to you now as veterinary surgeons. If I were addressing an audience of medical men I should have to point out other, and perhaps even greater or more important, methods of the spread of the disease and I should have to insist upon other methods of prophylaxis and treatment. Gentlemen, I wish you a pleasant and instructive year and I believe that you can have that in one way only—keep a sound mind in a healthy body. Health is one of the greatest gifts God has given us; without it the best trained mind cannot do its best work. To you, one and all, I say, Do not loaf. Work while you are at work, but when you have finished and feel that you have done your duty play your very hardest and apply practically in your own case those physiological laws concerning muscular action, respiration, and nutrition by means of which mind and body may be kept in a condition that will enable you to give your very best to yourselves, your patients, and the community.

LONDON SCHOOL OF TROPICAL MEDICINE.

DR. MANSON, lecturer on tropical diseases at St. George's Hospital and Charing-cross Medical Schools, delivered the inaugural address. He said that the first lesson that the student of tropical medicine should learn is that the distribution of the germs of the more important tropical diseases is not in any way dependent on the influence of temperature on the human body, for such germs if they become established in the human body will flourish there in the coldest

as well as in the warmest climate. It is well known that the malaria parasite having obtained an entrance into the system of an individual in tropical Africa may persist for years after the patient has been living in England. The greater part of Dr. Manson's address was occupied with a discussion relative to the nature of the infection of plague and the manner in which the present epidemic of it has spread so extensively. Rats contract plague more readily than human beings do and they are thus a means of spreading epidemics. Plague is not a very infectious disease, certainly not so much so as small-pox, scarlet fever, or typhus fever, and if the rats in a town were exterminated before the arrival of the disease there would be little chance of its gaining a hold on the place. The preventive measures applicable to cholera are not applicable to plague because cholera is conveyed by water and plague by rats.

A CASE OF PERSISTENT WARTY GROWTH OF THE VULVA (EPITHELIOMA?) ASSOCIATED WITH PRURITUS VULVÆ.

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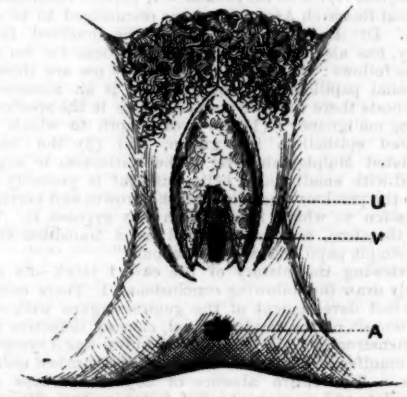
FOR several reasons the following case is, I think, worthy of record. First of all it is apparently an example of pruritus occurring purely as a reflex manifestation of uterine disturbance; secondly, the warty condylomata appear to have owed their origin and persistence to the constant local irritation produced by the pruritus; and lastly, after acquiring a distinctly epitheliomatous type the growth was successfully removed and shows no tendency to recur after a period of upwards of two years. The case is as follows.

The patient was a single woman, aged 37 years. She consulted me in May, 1897, for a growth of the vulva and gave me the following history. Menstruation commenced in her twentieth year and had always been irregular, scanty, and painful. Moreover, at the onset of each menstrual period she experienced a great deal of distressing pruritus of the vulva. This irritation appeared the day before the flow and lasted one or two days after the latter had ceased. During the last ten years it had steadily increased until it became intolerable. During the periods it was impossible for her to abstain from seeking relief by scratching. She lived in perpetual misery, looking forward with dread to the next menstrual period. Five years after this pruritus began to be troublesome she noticed a small warty growth in the genital cleft immediately above the clitoris. She had never had any vaginal discharge of any kind, neither was there any glycosuria. As the growth increased in size it was removed by a surgeon in January, 1895. After the removal the pruritus continued as before. Six months later the growth reappeared and was removed a second time. In November, 1895, it began to recur and a third removal became necessary. In August, 1896, it was growing again and was operated upon for a fourth time. I was informed by her medical man that the growth at this date consisted of a warty mass situated above the clitoris, with several scattered centres surrounding it. The whole mucous membrane involved was freely excised and the parts were allowed to heal by granulation after cauterisation. Pathological examination showed it to be a simple warty condyloma. The growth had evidently no causal relation to the pruritus as the latter was unaffected by these removals. In October, 1896, the growth reappeared. For ten months every conceivable topical remedy was tried without any result beyond producing some ulceration and irritation and her condition was a truly miserable one. In July, 1897, I examined the patient with a view to operation. I found an extensive diffuse papillomatous growth covering the whole mucous surface of the genital cleft, enveloping the clitoris in the centre and extending down on each side of the meatus urinarius and the vaginal orifice. There was no evidence of malignancy to the eye or touch. The parts were freely moveable but slightly tender owing to the various caustic remedies that had been used. The inguinal glands were slightly enlarged from the same cause. The labia majora were dotted along their margins with small warty growths. There was a well-marked hymen and no trace of discharge of any kind. Anti-syphilitic remedies had been very fully tried without effect. All things considered it seemed certain that the pruritus was in no way the result of irritation from the growth. Not only had it existed several years before the latter appeared but also it had remained unaltered after each of the four operations. In the entire absence of any vaginal discharge or any other source of local irritation I could only regard it as a reflex manifestation of the disturbed uterine functions. I determined, therefore, to act upon a suggestion of my old friend and teacher Mr. Pridgin Teale who had seen the case and attempt to rectify any pathological condition of the uterus prior to removing the growth. Under ether, therefore, I first examined bimanually and found the uterus

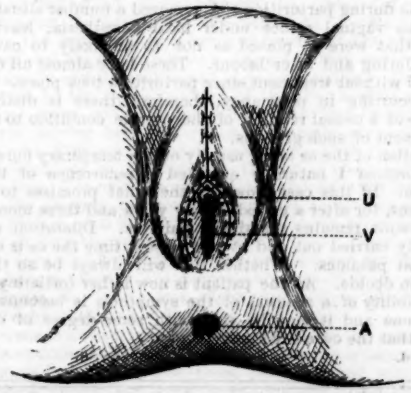
FIG. 1.



U, Urethra. V, Vagina. A, Anus. The upper portion of the genital cleft is occupied by a warty growth. A thin line indicates the incision.

of almost infantile dimensions with a small conical os. With a little difficulty I very fully dilated the latter with Hegar's dilators. The growth was then exposed in the following manner. The knife was entered over the symphysis and an incision was carried down each of the labia majora a good quarter of an inch from their margins. The incisions went down to the periosteum as far as the bone extended and reached a good inch below the level of the meatus urinarius. The lower extremities of

FIG. 2.



U, Urethra. V, Vagina. A, Anus. The appearance presented after the operation.

these incisions were then joined by an angular incision carried across the genital cleft and rising in the mid-line above the meatus. The whole area of mucous membrane and soft tissues included within these incisions was then dissected off the pubes beneath. The clitoris was of necessity removed, being enveloped in growth and already

partly destroyed by the previous operations. The cut edges of the labia majora were then brought together in the middle line above the meatus and stitched to the cut edge of the mucous membrane below along the sides of the meatus and vaginal orifice. The whole genital cleft was thus obliterated except for the vaginal orifice and the meatus urinarius above it. The accompanying illustrations show better than any description in words the condition of the parts before and after the operation. The wound healed by first intention and the stitches were removed on the ninth day. The catheter was never used. Menstruation commenced on the eleventh day and was painless. There was an entire absence of pruritus for the first time for 15 years. I have seen the patient occasionally during the past two years. She remains quite well, there being no return of her distressing symptoms or of the growth. She has lost her nervous depression and melancholia and is now leading an active life.

Pathological report on the tumour.—A portion examined by the Clinical Research Association was pronounced to be epithelioma. Dr. Eurich, pathologist to the Bradford Royal Infirmary, has also kindly examined specimens for me and reports as follows: "The sections you sent me are those of an epithelial papilloma. Although there is an absence of true cell-nests there are two characteristics in the specimens suggesting malignancy: (1) the great depth to which the proliferated epithelium has grown, and (2) the badly differentiated Malpighian layer. The epithelium is largely infiltrated with small round cells, but that is probably due partly to the previous treatment of the growth and partly to the irritation to which its situation has exposed it. The growth, therefore, may be regarded as a transition stage between simple papilloma and epithelioma."

On reviewing the history of the case I think one may reasonably draw the following conclusions. 1. There existed an imperfect development of the genital organs with congenital stenosis of the cervical canal, causing defective and painful menstruation. 2. The pruritus vulvæ was a symptom or reflex manifestation dependent upon the disturbed uterine functions. The entire absence of any other cause and the immediate and permanent relief following free dilatation of the os after all other treatment had failed hardly admits of any other explanation. 3. The persistently recurring growth, ultimately assuming a malignant character, seems to have owed its existence to the constant irritation and congested condition of the cutaneous and mucous surfaces affected by the pruritus.

It is an interesting fact that simple condylomata of the external genitals not infrequently appear during pregnancy and show a special tendency to grow and spread rapidly during the period of gestation. I have quite recently seen a woman in the sixth month of pregnancy in whom a crop of these growths had appeared three months previously. These had spread and multiplied so much that the advisability of removal was considered, as they seemed likely to give rise to trouble during parturition. I removed a number situated about the vaginal orifice under local anæsthesia, leaving several that were so placed as not to be likely to cause trouble during and after labour. These have almost all disappeared without treatment since parturition took place. In cases occurring in pregnancy, therefore, there is distinct evidence of a causal relation of the uterine condition to the development of such growths.

Dilatation of the os being usually only a temporary cure of dysmenorrhœa I naturally expected a recurrence of that symptom. In this case, however, the relief promises to be permanent, for after a period of two years and three months menstruation remains practically painless. Dilatation was very fully carried out and at the present time the os is still somewhat patulous. Whether this will always be so time alone can decide. As the patient is now in her fortieth year the possibility of a renewal of the symptoms is becoming a remote one and it may be said with some degree of confidence that the cure is permanent.

Bradford.

MIDDLESEX HOSPITAL.—The entrance scholarships at the Middlesex Hospital Medical School have been awarded as follows:—Freer Lucas scholarship (135 guineas), Leonard Herbert Henry Bays, Epsom College; first entrance scholarship (£100), F. Wood; second entrance scholarship (£60), W. Kingsbury; entrance exhibition (£25), Raoul Félix, Mauritius; University scholarship (£60), A. E. Taylor, Downing College, Cambridge.

BROMIDE OF STRONTIUM IN THE TREATMENT OF EPILEPSY.

BY N. CULLINAN, M.D. BRUX., L.R.C.P., L.R.C.S. EDIN., L.F.P.S. GLASG.

DURING the past few years several cases of epilepsy have come under my observation. The name "epilepsy" may be regarded as a term indicative of several symptoms due to various causes. Of the latter some are profound or organic, due to structural changes in the brain substance or the result of direct pressure. With cases of this class I shall not attempt to deal as they are not directly amenable to medicinal treatment. On the other hand, we meet with cases in which the attacks appear to be functional in character and to depend on various causes, such as those due to a constitutional weakness as the result of heredity, alcoholism, and syphilis in the parents, the offspring being weak in body and mind, with little will power and easily thrown off their mental balance. We also meet with cases resulting from fright, cases occurring at the appearance of the catamenia, and cases due to reflex agents. If the source of irritation in seizures due to the latter causes can be determined and removed there is reasonable hope of a satisfactory result; and the sooner the better, for the greater the number of attacks the greater is the difficulty in checking recurrence, as a sort of habit is established.

What I consider to be of the highest importance in the treatment of this, as of all other affections, is the general management of the patient in regard to diet, exercise, and attention to the different functions of the body. In the first place, as to diet, the lightest and most assimilable forms should be ordered in quantities sufficient to sustain nature while not unduly taxing any organ of the body. The food should be administered regularly in moderate quantities and alcoholic drinks should be altogether prohibited. The latter are particularly injurious, a fresh attack of epilepsy being generally the result of each such indulgence. Meat should not be allowed more than once daily, and then at midday, and the patient should not retire to rest until gastric digestion is complete. Plenty of exercise, but not sufficient to produce exhaustion, is to be commended in order that healthy tissue changes may take place. If from any cause the patient cannot take exercise it may be supplemented by massage. The different secretions and excretions of the body should be carefully looked after and attended to in order that no toxic effects shall be produced by the retention of poisons in the system, and the mind of the patient must be kept pleasantly occupied and any condition or cause tending to produce depression or mental worry should be especially avoided. A cold bath or tepid sponging of the body under supervision acts as a good tonic to the entire system.

Various drugs are employed in the treatment of this disease and of them the most commonly used are the bromides in some form or other, each practitioner having his own particular formula. The one I find to act most surely and effectually is the bromide of strontium given in variable doses to suit the age and condition of the patient in combination with syrup of orange-peel and infusion of calumba, and if no irritability of the stomach exists I add 10 grains of borax to each dose. A good result is generally found to ensue in a short time. An aperient—a blue pill followed by a Seidlitz powder—acts beneficially. The bromide in this form is well borne by the stomach and may be continued for an indefinite period without affecting the mental condition or producing that intense depression so often caused by the potassium salt. The dose I usually give is one drachm for an adult four times a day after a light meal and proportionate doses for children according to their age.

I give two cases illustrative of the action of the drug in this disease.

CASE 1.—A man, aged 30 years, had been suffering from epilepsy for 15 years, during which time the attacks were at the rate of six to eight each week. He had been the round of the various hospitals, &c., in the neighbourhood, and according to his own statement had always been given the "salty" medicine—meaning, I expect, the potassium salt. A prescription in his possession, which he had been having regularly dispensed, showed 40 grains of bromide of potassium to each dose to be taken three times a day.

The medicine, he stated, lessened the number of attacks considerably, but produced intense depression with loss of memory, so that he said "the cure was as bad as the disease." I gave this patient one drachm of the strontium salt four times a day with 10 grains of borax in each dose. The result was good. Three months from the date of commencing the treatment the attacks had completely vanished, the memory showing much improvement and the depression being slight. I then gave the medicine in half quantities and the patient still continued to improve. These latter doses he continued to take for six months by which time his memory had completely returned and his depression had vanished. No seizures having occurred for seven months I dropped the quantity of the salt to 40 grains at bedtime and this he still continues to take. The man now performs his ordinary duties with pleasure and with care his life may be a useful one.

CASE 2.—This was the case of a girl, aged seven years. The first attack occurred when the child was three years old and was the result of fright. The father was an alcoholic and died from phthisis. The mother was living and was of a highly nervous temperament. The seizures, which were remote at first, gradually became more severe and lasted longer and each interval between them became shorter. During this time the child was under medical treatment without any improvement. When I saw her four months since the attacks numbered from 12 to 14 in the course of 24 hours. The mental condition bordered on imbecility, with complete loss of memory. I prescribed the bromide of strontium in doses of half a drachm to be taken three times a day with an occasional "grey powder," the body to be sponged with tepid water, and cold affusion applied to the head. Marked improvement resulted in all the symptoms, the last report being that for 17 days she had not had an attack. There was also much improvement in the mental condition, the child taking an interest in her surroundings.

Altogether I have treated 11 cases in this way with the drug and the results are satisfactory. The points which I consider to be of essential importance in the course of treatment of this affection are plain good food in moderate quantities, regular and sufficient exercise, total abstinence from alcoholic drinks, plenty of sleep, avoidance of mental worry or excitement—in fact, the leading by the patient of a consistent life.

My experience of the various bromides is that the preparation with strontium is far more effectual in the treatment of epilepsy than is that with potassium, sodium, or ammonium. Its sedative action is well marked, causing but slight, if any, disturbances of the gastric functions and appearing to act as a tonic to the nervous system generally. It does not impair the mind of the patient or produce anæmia; while, on the other hand, the external evidences of improved blood-supply are well marked. On the whole it tends to produce a healthier tone of mind and body. The addition to each dose of the salt of 10 grains of borax appears to act beneficially, but has the disadvantage, if continued for a time, of causing a low form of gastritis with flatulence which is very distressing to the patient. Otherwise I believe it to be a good adjunct in the treatment.

Pontymister, Mon.

A CASE OF OVARIOTOMY.

BY ERNEST H. TIPPER, M.R.C.S. ENG., L.R.C.P. LOND., L.S.A.;

AND

ARTHUR E. PHILIPPS, M.R.C.S. ENG., L.R.C.P. LOND., L.S.A.

ON Feb. 14th, 1899, a patient came to engage me (Mr. Tipper) for a confinement which she expected would take place early in June. Since there were no mammary changes and menstruation, though scanty and irregular, had been present throughout I expressed a doubt about the pregnancy. The woman, however, felt sure of her condition and mentioned that during her last pregnancy the same symptoms had obtained. As she rather resented being examined I told her to come again and I would make a complete examination. She shrank from knowing her fate, like so many patients do, often till too late, and I saw no more of her until June 24th, when she sent for me because she was experiencing great abdominal discomfort, dyspnœa, and some pain when she lay on her right side. The patient, who was 40 years of age, commenced menstruating at the age of 15 years. She was married in her twentieth year and had two children by the marriage. Both were living and healthy. The husband died five years later from phthisis. She married again and by her second husband she had two children, one of whom was living, but the other, born ten years ago, was an eight-month stillborn child. There was irregular menstruation throughout and ever since she had suffered from dysmenorrhœa. In August last the abdomen began to enlarge and the courses became scanty and irregular. There were no mammary enlargements or tenderness, no pain in the pelvis, and no vomiting. She had lost flesh considerably. Her general appearance was one of extreme emaciation, dark rays encircled the eyes, and the respiratory movements were shallow and laboured. The temperature was normal and the pulse was 74, very compressible, and of great volume. The abdomen was of an enormous size, the most prominent part being just below the umbilicus and measuring 49½ inches in circumference. The distance of the umbilicus to the right superior iliac spine was 13½ inches and to the left 12½ inches. It rose abruptly from the symphysis pubis and thrust the thorax upwards and forwards. It was regular in outline and there was no lateral bulging. The veins were very distended and in the right hypochondrium the skin was becoming discoloured and œdematous. On the whole the abdomen was smooth, tense, resilient, and dull to percussion. A fluid thrill was obtained. The os uteri was patulous and capable of admitting the tip of the finger. The upper part of the vagina was tense and bulging. Two ounces of urine were removed from the bladder by the catheter. I diagnosed an ovarian cyst and advised an immediate operation.

Mr. Arthur Philipps of Fulham concurred in this advice and a few hours later he administered $CHCl_3$ followed by A.C.E. Having taken the utmost antiseptic precautions I made an incision of four inches in length in the median line, which was afterwards increased to six inches. The tissues separated widely when severed; there was little or no hæmorrhage and, having divided the peritoneum, the bluish-white shining surface of the cyst came into view. It was impossible to introduce the hand between it and the abdominal parietes. I thrust a large trocar and cannula into the tumour and some thick dark brown blood-stained serum escaped. The process of emptying was slow and tedious and some fluid had not been prevented from entering the abdominal cavity, so the incision in the cyst was increased and in this way 14½ pints of fluid were expressed. The tumour was now reduced to about one-fifth of its original size and its interior presented a semi-solid gelatinous feeling to the fingers. This was a conglomerated mass of minor cysts, dark red in colour, striated, and occupying the upper and back part of the major cyst. Gliding my hand along between the cystic and parietal peritoneum I found that the adhesions commenced just above the umbilicus and involved several of the abdominal viscera, but they were not very strong and they easily yielded to a gentle saw-like movement of the finger-tips. They were greatest in the neighbourhood of the liver against which a conical mass was pressing firmly. At this juncture, the patient having been under the anæsthetic a considerable time, Mr. Philipps expressed anxiety about her condition, so I decided not to proceed any further at present with the operation. The cyst was sutured, the abdomen was irrigated, and the primary incisions were closed as soon as possible. The patient soon recovered from the shock which probably resulted from the removal of so much fluid. Next morning there were slight vomiting (which was relieved by bismuth) and intense thirst. The temperature was 99·8° F. and the pulse was 90. There was slight tympanitic abdominal distension which disappeared on the third day.

A week later everything was favourable for the completion of the operation. $CHCl_3$ was again given, the adhesions were again broken down, and three pints of fluid which had collected during the week were removed from the cyst. The tumour was brought outside the abdomen with some difficulty and a needle threaded with No. 4 silk suture was passed through the base of its pedicle as low down as possible, and having secured it by the Staffordshire knot method the whole mass was completely removed and the stump was dusted with iodoform. By means of a Budin's catheter the abdomen was thoroughly irrigated with a solution of biniodide of mercury (1 in 2000) until clear fluid

returned. The more dependent parts having been dried out with sterilised lint the abdominal wound was closed with a single set of silk sutures which included the peritoneum, the edges of the recti, and the skin. The cyst sprang from the right ovary. It was not adherent to the uterus or left ovary. A week later, primary union having resulted, the stitches were removed and the patient made an uninterrupted recovery.

The following is the report of the pathologist to the *Guy's Hospital Gazette*: "This specimen has the structure of a multilocular ovarian cyst originating in the body of the ovary. Its surface is covered with recent lymph from peritonitis and the blood stained contents indicate twisting of the pedicle of the cyst."

Camberwell, London.

NOTES ON THE USE OF HOMATROPINE DROPS IN SOME CASES OF MUSCULAR ASTHENOPIA.[1]

BY ADOLPH BRONNER, M.D., M.R.C.S.,

SENIOR SURGEON TO THE BRADFORD EYE AND EAR HOSPITAL; LARYNGOLOGIST TO THE BRADFORD ROYAL INFIRMARY.

CASES of muscular asthenopia are becoming more and more frequent in proportion to the higher standard of education and to the increased competition in daily life. At our schools, especially the Board schools, during the last few years the children have to read and write much more than they did formerly, in after life clerical work is becoming more arduous, and in the manufacturing districts of Lancashire and Yorkshire the weavers and spinners have much finer and more difficult work to perform. The majority of cases of muscular asthenopia are relieved by the use of glasses. At the Bradford Eye and Ear Hospital during the year 1898 no less than 2300 pairs of glasses were ordered, of which about 400 were cylindrical. In 1885 at the same hospital only 324 cases of error of refraction were recorded, of which only 16 were astigmatic. It is practically impossible to accurately diagnose and correct errors of refraction without the help of retinoscopy. It is due to retinoscopy that we are able, with the aid of glasses, to relieve and cure many cases of so-called incurable asthenopia. On the continent, for some inexplicable reason, retinoscopy is not so universally adopted as in this country, and this explains why at our hospitals the percentage of cases of asthenopia is so much smaller than it is at foreign hospitals. There are, however, some cases in which even glasses, spherical, cylindrical, or prismatic, all to relieve the asthenopia. The orthodox method of treatment is to order atropine drops to be used for from two up to 10 or 12 weeks. Undoubtedly in many cases this is the only remedy. The drawbacks to the use of atropine are, however, many and obvious. In the first place, the patient is incapacitated from following his employment for a lengthy period of time. In manufacturing districts this is a very serious hardship. Atropine often causes eczema or photophobia, and some patients have great difficulty in "getting about" and feel intensely miserable; in fact, they often flatly refuse to use, or to continue the use of, the atropine drops. For the last few years I have in many cases tried the use of 1 per cent. hydrobromate of homatropine drops instead of atropine. I generally order them to be used three times a day for two or three days and then two to three times in the evening directly after work for several weeks. It is known that the effect of the homatropine passes off in a few hours, so that the patient, if the drops are used in the evening, is able to follow his occupation on the following day. In some cases, I admit, the homatropine does not permanently relieve the asthenopia, and atropine has to be used. Often the patients, especially ladies, refuse to wear glasses for constant use. If the error of refraction is slight I find that a course of homatropine drops permanently relieves the asthenopia. In cases where the patient is reading for an examination or is engaged in some important business and cannot afford to give the eyes a rest or use atropine, the use of homatropine is especially called for. The history of a few typical cases will perhaps illustrate the beneficial use of homatropine more clearly than theoretical suggestions.

CASE 1.—The patient was a student of medicine working for his examinations. He was wearing cylindrical glasses. For the last few weeks he had had difficulty in reading and suffered from pains in the eyes and head. A slight alteration in the glasses relieved the symptoms to some extent. Homatropine drops were used three times a day for two days and then twice every evening for 10 days. After the first day the pains were relieved and he was soon able to read for several hours a day with comfort.

CASE 2.—A lad was sent home from a boarding-school because he complained of pains in the head when doing his lessons. He was wearing correcting glasses. As it was the middle of the term the father was anxious that the boy should not stay at home for any length of time. Homatropine was ordered. In four days he returned to school. He used the drops every evening for four weeks and he had no more pains.

CASE 3.—A woman (a weaver) had had intense headaches for several years. Two years ago cylindrical glasses were ordered for constant use and the pains disappeared. Some weeks ago she had a bad attack of influenza and had had severe pains in the eyes when at work ever since. As she was in poor circumstances and could not afford to have a holiday, homatropine drops were ordered to be used at bedtime for three weeks. In a few days the pains were relieved and they have not returned.

CASE 4.—A young woman had suffered from pains in the eyes and head for some time. There was slight hypermetropic astigmatism. She refused to wear glasses for constant use. Homatropine was ordered twice for three days and then every evening for two or three weeks. The pains were relieved. She now uses the homatropine whenever she does not feel well. She is able to read and sew without much discomfort.

CASE 5.—A man, aged 50 years, had a "bad attack of gall-stones" five weeks ago. Since then he has felt very weak and had great pain in the left eye (the right eye was amblyopic), especially whenever he attempted to read or write. He was very busy and extremely anxious to get back to work at once. I ordered homatropine twice for two days, the pains disappearing after the first day. He was using the drops every evening and was able to attend to his work. In 10 or 12 days when he had concluded his important business he intended taking a long holiday.

Bradford.

[1] Abstract of a paper read on August 2nd, 1899, in the Section of Ophthalmology at the annual meeting of the British Medical Association at Portsmouth.

STRANGULATED INGUINAL RICHTER'S HERNIA WITH HYDROCELE OF THE SAC.

BY T. HILLHOUSE LIVINGSTONE, M.B., CH.B. EDIN.,

HOUSE SURGEON TO THE ROCHDALE INFIRMARY.

THE report of a case of Hydrocele of the Sac of a Femoral Hernia by Dr. Duncan Macartney, surgeon to the Glasgow Cancer Hospital, published in THE LANCET of Sept. 9th, 1899, p. 710, which I read with interest, has led me to give some details of a case which came under my notice about the same time.

A woman, aged 45 years, was admitted into the Rochdale Infirmary complaining of vomiting and pain in the lower part of the abdomen in the right iliac region, with obstinate constipation. The symptoms and signs had existed for six days before admission and on examining the patient I found a hard, tense, tender swelling in the right groin which I diagnosed as a strangulated inguinal hernia. On making inquiries I found out that there was a history of a reducible hernia being present in the right inguinal region for 20 years and of a truss having been worn on and off for that space of time. The vomiting, which was very frequent, was fæcal in character and the abdomen round about the swelling was hard and board-like, whilst the right thigh was flexed on the abdominal wall. The temperature on admission was 97·5° F., and the pulse, which was of very low tension and thread-like in character, was 105.

No time was lost in preparing the patient for operation, as I considered that taxis was inadvisable, and

chloroform was administered. The skin over the tumour was pinched up and transfixed and the subcutaneous tissue was carefully divided as the coverings of the hernia seemed to be very thin. After a few strokes of the knife some clear serous fluid escaped in a spurt from a cyst. Upon slitting up the cavity of the cyst a pear-like tumour with a long pedicle came into view. Fibrous bands were continuous with the tumour and the cavity of the hydrocele, so that the finger could not be passed along the neck into the ring. On incising the neck near the ring, where it was not so tense, it was found to be easy to lay open the elongated neck of the sac and to free the incarcerated bowel which was adherent to the peritoneum by fresh adhesions. These adhesions were easily broken down, and the bowel, which looked healthy, was returned. The sac was ligatured and cut off, the conjoined tendon was sutured to Poupart's ligament, and after the wound had been closed with silkworm gut the patient was sent back to bed, having taken the anæsthetic admirably all through the operation. The vomiting still continued, but was less severe than formerly and not so frequent, whilst the fæcal odour was absent. It was controlled to a certain extent by internal medication. Towards early morning, however, the patient became collapsed and covered with a cold clammy perspiration, whilst the pulse was running. Shortly afterwards diarrhœa came on and was very profuse and fœtid in character. Brandy was administered and auto-transfusion was carried out, and at the same time the patient's warmth was maintained with hot-water bottles. After a while the collapsed condition passed off to a certain extent. In a few hours the same condition supervened and epigastric pain was then complained of, but in spite of hypodermic injections of strychnine and the administration of champagne by the mouth the vomiting and diarrhœa became uncontrollable and the woman expired.

I obtained permission to make a post-mortem examination and on opening the abdomen the intestines were found to be very much congested, probably owing to the amount of purgative medicine which the patient had taken before admission to the infirmary and which at the time had been ineffectual. The intestines were matted together in parts and a considerable portion of the bowel was covered with a purulent exudation. On examining the piece of gut which had been returned into the abdominal cavity a minute perforation at the constricted part of the gut was discovered, which evidently had given way some hours after the operation, probably at the time when the epigastric pain was complained of. From the history of the case and from the appearance of the adhesions I should say that peritonitis had existed prior to the operation. Another interesting point in the case is the fact that only a portion of the circumference of the bowel had been held by the constricting bands (Richter's hernia, sometimes incorrectly called Littré's hernia) showing that for strangulation to occur it is not necessary for the whole circumference of the intestine to be included in the stricture.

Rochdale.

THE POST-MORTEM CHANGES IN THE LUNGS.

BY C. DANIELS, M.B. CANTAB., M.R.C.S. ENG.,
BRITISH GUIANA MEDICAL SERVICE.

THE importance to be attached to the post-mortem changes in the weights and appearances of the lungs has not received sufficient notice in the ordinary works on pathology. Necropsies in British Guiana are made as soon as is convenient after death and practitioners there are therefore better able to consider the early changes than is possible in England. I enclose a table of the combined weights of the two lungs in male adults at varying times after death. I have excluded cases of lobar pneumonia, tuberculosis, and other gross pulmonary lesions, and also cases of pleural effusion, much thickened pleura, and unusually adherent pleura. With these exceptions all post-mortem examinations made in the year 1894 on males are included (including all cases described as "congested" or "œdematous") where the times of death and post-mortem were noted. These examinations were all made by me at the Georgetown Hospital, British Guiana.

No. of cases.	Interval between death and post-mortem examination.	Average weight.	No. under 20 oz.	No. from 20–30 oz.	No. from 30–40 oz.	No. from 40–50 oz.	No. from 50 oz. and over.
36	Under 3 hours.*	17·6	31	5	—	—	—
23	3 to 4 hours.	25·6	3	17	2	1	—
42	4 to 6 hours.	27·7	7	18	16	1	—
56	7 to 12 hours.	29·1	3	19	22	12	—
80	13 to 18 hours.	34·8	—	30	30	15	5
24	Over 18 hours.	44·1	—	1	6	12	5

* Six of the cases recorded as under three hours were under two hours and the average weight was 13·1 oz.

Even where the lungs appear congested and would be reasonably expected to be so, we find the same small weights shortly after death with an increase varying directly with the interval between death and the examination. Thus in right lobar pneumonia (36 cases) the average weights of the left lungs were—under three hours, 8·7 ounces; from three to four hours, 10 3 ounces; from four to six hours, 11·4 ounces; from seven to 13 hours, 20·7 ounces; from 13 to 18 hours, 20·5 ounces; and over 18 hours, 21 ounces.

It will be seen from the above table that there is a decided increase in the weights after three hours, before putrefaction, even in this hot moist climate, commences, and that the increase continues for each period though more rapidly after 12 hours when there is always abundant evidence of decomposition. It is only in the late cases that the weight corresponds to that given by Quain (45 ounces). The cause of the increase of weight can only be due to the lungs containing more fluid at the time of weighing, and this is probably connected with the loss of elasticity in the dying pulmonary tissues. A diminution in the elasticity of the lungs would cause an increased weight in two ways: first, on opening the chest they would contract less and therefore would expel less fluid; secondly, and I think chiefly, before the chest is opened there must be constant negative pressure in the pulmonary tissues from the lungs being kept on the stretch, and therefore any available fluids will be slowly drawn in. As the elasticity diminishes the vessels and areolar tissue will be capable of containing more and more fluid.

It is obvious that the appearance of the lungs will be dependent on the most easily available fluid and that in cases of anasarca they will contain clear fluid and in deaths from asphyxia blood-stained fluid. In cases of pernicious anæmia where the blood coagulates very slowly and is extremely pale, it may coagulate in the pulmonary tissues and thus cause the slight consolidation which is not uncommon in that complaint, though the lungs are, when that appearance is met with, crepitant throughout. This is sometimes called "œdematous pneumonia." The later increase in weight may be due, in addition, to the more complete loss of elasticity, to the more fluid character of the cardiac contents resulting from the separation of the serum from the coagulum, and here also from putrefactive changes.

The above principles are of some medico-legal value if other conditions be taken into account, though owing to the wide variations in the actual weights they cannot be taken too absolutely. They must also be taken into account when considering such statements as "the weight of the lungs diminishes in the tropics," or that the lungs are particularly small in certain diseases—e.g., cholera, in which we know examinations are made earlier than usual.

Georgetown, British Guiana.

MEDICO-PSYCHOLOGICAL ASSOCIATION.—A meeting of the Northern and Midland Division of this association will be held at the West Riding Asylum, Menston (one mile from Guiseley Station), near Leeds, on Wednesday afternoon, Oct. 11th, 1899. A paper will be read on the Disadvantage of Hypnotics in the Treatment of the Insane, by Dr. C. K. Hitchcock, of the Bootham Asylum, York. Dr. MacDowall invites members to dine at the asylum at 6.30 P.M., in morning dress.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

WESTMINSTER HOSPITAL.

A CASE OF EXTENSIVE GUMMATOUS DISEASE AROUND THE FEMUR AND THE HIP-JOINT WITH CHRONIC PERIOSTITIS OF THE LINEA ASPERA; AMPUTATION; RECOVERY.

(Under the care of Mr. W. G. SPENCER)

THE examination of the limb after removal in the case recorded below makes it almost certain that the condition was syphilitic, but it does not appear that there were any symptoms or signs by which a diagnosis could have been made before the operation. It is very doubtful if the administration of potassium iodide would have succeeded in causing the absorption of any considerable portion of the extensive gummatous deposit even had the general condition been better than it was. For the notes of the case we are indebted to Mr. Francis Riley, house surgeon.

A man, aged 47 years, was on July 29th admitted into the Westminster Hospital in an emaciated condition. His left leg was much wasted and flexed at the knee and the thigh was fixed in a flexed and adducted position. An unhealed incision was present on the outer side of the thigh reaching half-way down from the great trochanter and covered with exuberant pale granulations, and through the opening hard roughened bone could be felt with the probe. Another incision was present on the anterior surface, reaching from the anterior superior iliac spine to the middle third of the thigh, and was covered with superficial granulations, discharging pus without any deep sinuses being present. A healed incision was also present over the course of Hunter's canal and a counter opening at the level of the gluteal fold posteriorly gave exit to a quantity of thick pus. The adductor region was swollen, indurated, and painful, and there was pain all down the shaft of the femur which was thickened. The patient complained in April of weakness of the left hip and knee, which was followed by severe pain thought to be sciatica. In May he first noticed a large swelling in the upper part of the thigh and was taken to the Royal Free Hospital, where the above incisions were made, and finally amputation was recommended but declined. As he was found by Mr. A. W. Austen to have albumin in his urine, while the discharge of pus continued, and as his general condition did not improve he was taken to the Westminster Hospital in order that amputation at the hip might be performed.

On August 3rd Mr. Spencer amputated at the left hip-joint by the anterior racket method, but some difficulty was experienced in avoiding the old incisions, the result being a tongue-shaped flap on the anterior aspect of the thigh. There was very little hæmorrhage. The patient suffered from considerable shock, but was greatly benefited by hot enemata. A large quantity of purulent gummy material was found around the bone and infiltrating the muscles which were matted together and partly replaced by a mass of fibro-cicatricial material. On examining the bone it was found to be greatly thickened mainly along the linea aspera by rough, dense, periosteal bone. The hip-joint, including the acetabulum, was normal, but the knee-joint was subluxated backwards. Recovery from the operation was rapid, but owing to the extensive suppuration small quantities of creamy pus continued to be discharged from beneath the anterior tongue-shaped flap. The temperature after the operation sank to normal and the urine became free from albumin. On August 31st the condition of the patient had so much improved that he was sent to a convalescent home.

Remarks by Mr. RILEY.—The main point of interest in this case centred in the diagnosis. There was no history or evidence of tuberculous disease nor was there any history of previous injury or acute bone disease which would lead one to suspect the existence of a sequestrum. Although there was not any history of syphilis to be obtained the character of the gummy exudation and the extensive periostitic deposit down the whole length of the shaft of the bone point strongly to that diagnosis. With regard to the question of amputation the necessity of it was clearly indicated by the failure of all palliative measures, the probable onset of lardaceous disease, and the fact that the patient was going down-hill. The pain complained of down the thigh and attributed to sciatica was probably due to pressure upon the sciatic nerve caused by the development of new bone on the posterior aspect of the femur as well as to its involvement in fibro-cicatricial material, the result of chronic inflammation.

Analytical Records FROM THE LANCET LABORATORY.

(1) "TABLOID" HOLOCAINE HYDROCHLORIDE; AND (2) "SOLOID" MICROSCOPIC STAINS.

(BURROUGHS, WELLCOME, AND CO., SNOW-HILL-BUILDINGS, LONDON, E.C.)

HOLOCAINE hydrochloride was introduced into ophthalmic surgery about two years ago and an account of its use appeared in THE LANCET of May 20th, 1897, p. 1466. It is said that a 1 per cent. solution is equal to a 2 per cent. solution of cocaine. It is a combination of phenacetin and paraphenetidin. It is claimed that holocaine produces anæsthesia of the eye in one minute, the effect being more rapid and complete than that produced by cocaine, while there is no mydriasis or disturbance of the accommodation, its action being apparently due to the paralysis of the sensory nerve-endings. The tabloid contains one-fiftieth of a grain of holocaine hydrochloride and the introduction of the dry salt in this convenient form does away with the objection that solutions of holocaine quickly deteriorate and diminish therefore in therapeutic value. The same disadvantage of the tendency of solutions to decompose is avoided by the use of soloid microscopic stains. The aniline dyes used for this purpose are subject to deterioration by the action of light, moulds, or some other agency. We have received a few specimens of a series of soloid microscopic stains comprising the following: gentian violet, methylene blue, eosin, bismark brown, and fuchsine. A saturated solution of these in water may be easily obtained by powdering one soloid in two drachms of distilled water. The resulting fluid when diluted 5 to 10 per cent. with distilled water will be found to be convenient for ordinary staining purposes. Similarly a saturated alcoholic solution may be made, directions being given in each case as to the quantities requisite for the purpose. Those who are constantly in need of stains in microscopical work will recognise the convenience and advantages which this method offers.

ZINOLINE SOAP.

(BARTHEL AND CO., 50, RATHBONE-PLACE, OXFORD-STREET, LONDON, W.)

This soap is well adapted for delicate toilet purposes on account of its neutrality and its freedom from foreign injurious substances. It gave a negative result when tested for the presence of free alkali by the phenol-phthalein test. Its name appears to be derived from the fact that some zinc oleate is used in its composition. We found, however, that the proportion of oleate of zinc was very small. The soap is superfatted and free from irritating qualities.

BRUT COGNAC.

(A. L. BOITEAU AND CO., COGNAC. LONDON AGENCY: J. N. BISHOP AND SONS, 13, COOPER'S-ROW, CRUTCHED FRIARS, E.C.)

The evidence of chemical analysis is in favour of this brandy being the product of the distillation of wine. It also

possesses that peculiar delicate vinous flavour and aroma of old and genuine brandy. Further, it contains a minimum quantity of extractive matters and on that account is probably called "brut." Our analysis was as follows: extractives, 0 24 per cent; mineral matter, *nil;* alcohol, by weight 40 80 per cent., by volume 48 21 per cent., equal to proof spirit 84 49 per cent.; acidity reckoned as acetic acid, 0·034 per cent.; and alcohol in ethers two parts in 10,000 parts. Thus the brandy contains a proportion of vinous ethers identical with the quantity found in genuine old cognac. From the evidence, therefore, of chemical test and of taste and from other physical characters there is reason for believing that the spirit is a genuine brandy and we define genuine brandy as a wine-derived spirit, a definition which excludes all spirits derived from cereals, starch, and other materials. According to this evidence of its quality the brandy is admirably adapted for clinical purposes.

WAMPOLE'S PERFECTED AND TASTELESS PREPARATION OF THE EXTRACT OF COD-LIVER OIL.

(H. K. WAMPOLE AND CO., PHILADELPHIA. AGENTS: MESSRS. EVANS, LESCHER, AND WEBB, 60, BARTHOLOMEW-CLOSE, LONDON, E.C., AND F. NEWBERY AND SONS, 1 AND 3, KING EDWARD-STREET, LONDON, E.C.)

This is a very complex mixture which is certainly tasteless as regards cod-liver oil, but it is redolent of certain aromatic principles, the taste also corresponding with the odour. The feature of the preparation is that it contains what are described as the essential principles of cod-liver oil. We obtained distinct evidence of the truth of this statement. Thus on shaking the mixture with ether, after acidifying with dilute sulphuric acid and separating the ether and allowing it to evaporate, a residue was obtained which responded promptly to the tests for biliary acids. The theory that the therapeutic value of cod-liver oil is due to active principles is strongly disputed by some physicians, the contrary view being that cod-liver oil is of value in wasting diseases because it is a nutritive of the first importance—in other words, that its therapeutic value is due to its effects as a food. It is highly probable, however, that the value of cod-liver oil is enhanced by the presence of traces of constituents such as iodine, bromine, and phosphates and certain alkaloidal bodies which contribute towards making cod-liver oil the hæmatinic which it is well known to be. It is well to bear in mind, also, that cod-liver oil is the most easily assimilated oil, being readily digested and absorbed with little tax on the digestive organs. The peculiar substances extracted from cod-liver oil exert probably a distinctly favourable influence upon the processes of nutrition and repair, and thus act as a valuable tonic. The preparation before us contains many other ingredients which include extract of malt, fluid extract of wild cherry bark, and syrup of hypophosphites compound. It is pleasant to the taste and is easily borne by the stomach. It has been stated that the presence of alkaloids in cod-liver oil was due to some deterioration having taken place, but recent inquiry has shown that cod-liver oil perfectly fresh from the liver contains something more than fats. In view of this statement the preparation before us would merit a trial, although it seems to us that it would be difficult to trace its therapeutic effect exactly to certain constituents, so complicated, as we have shown, is the mixture. The question of the efficacy of the "active constituents" of cod-liver oil can only be cleared up, it seems to us, by a trial of these unmixed with other medicaments.

NEW PHARMACEUTICAL PREPARATIONS.

(PARKE, DAVIS, AND CO., 21, NORTH AUDLEY-STREET, GROSVENOR-SQUARE, LONDON, W.)

We have received some examples of the important additions which this firm has made to its list of pharmaceutical preparations. Of these may be mentioned globules of saw palmetto and santal oils, each globule containing the therapeutically active oils from one drachm of fresh ripe saw palmetto fruit combined with three minims of pure santal oil. The combination would appear to be of value in the treatment of gonorrhœa. The blennostatic pills contain three grains of cinchonidine dihydrobromate, which is said to be useful in coryza and other catarrhal inflammations of the respiratory tract. Three minims of methyl salicylate combined with $\frac{1}{10}$ grain of colchicine appears to be a favourite formula in chorea. These quantities are contained in one globule, one or two of which may be administered three or four times a day. The extract of the leaves and twigs of *Fabiana imbricata* has been found useful in some diseases of the kidney, and recently some good effects have been announced as following the use of this extract in gonorrhœa and cystitis. The extract is called "fluid extract pichi." It is said to allay irritation of the urinary tract and to favour the expulsion of calculi. Lastly, we have received a specimen of sterilised and concentrated saline solution to be diluted according to direction for intravenous injection in hæmorrhage. It will be admitted that these additions are of interest and value.

LIQUEUR SCOTCH WHISKY (INVALID).

(W. J. WARD, 15, MAITLAND-STREET, EDINBURGH.)

The analysis of this spirit gave in our hands the following results: extractives, 0·21 per cent.; mineral matter, *nil;* alcohol, by weight 40·30 per cent., by volume 47 67 per cent., equal to proof-spirit 83 54 per cent.; and acidity reckoned as acetic acid, 0·024 per cent. The whisky is smooth and mellow to the taste and evidently mature. It is non-acid and contains a minimum of extractives, so that in conjunction with its purity of character and mellowness it should be well adapted for invalid dietetic purposes. It possesses the character of a genuine malt spirit ripened by age.

EXTEMPORARY AIDS IN ANGINA PECTORIS.

(W. MARTINDALE, 10, NEW CAVENDISH-STREET, LONDON, W.)

The convenience of two preparations like nitro-glycerine and amyl nitrite being at hand in convenient form is obvious. Mr. Martindale now provides two small cases which will easily go into the waistcoat pocket—one containing three glass capsules of amyl nitrite and the other chocolate nitro-glycerine tablets. Where attacks of angina pectoris are anticipated such handy preparations would be of decided advantage.

PAPER CONVENIENCE COVER.

(M. PAGE, 473, CALEDONIAN-ROAD, LONDON, N.)

This paper is impregnated with certain agreeable and antiseptic oils. It is intended to be placed on the seat of a water-closet in order to avoid contact with any septic matters which may be left on the seat by a tainted person. There is no doubt that danger of infection may arise in this way and we approve of the precaution which this simple device suggests. To some extent it would be a safeguard to persons travelling in those countries where the sanitary arrangements are likely to be unsatisfactory.

TYPHOID FEVER AT EXETER.—At the meeting of the Exeter City Council held on Sept. 27th, a special report was presented by the senior district medical officer of the city upon the recent epidemic of typhoid fever. This stated that from July 1st to Sept. 11th there were 85 cases of the disease notified and of these 58 patients had partaken of raw cockles at or from Exmouth. Nine of the patients had only visited Exmouth and one had partaken of other shellfish than cockles. 17 patients had not been out of Exeter and had not eaten cockles. 67 cases had been treated at the sanatorium with five deaths. One of the nurses there had contracted the disease. The cost of the epidemic would be between £1500 and £2000. During the discussion which followed the reading of the report some of the members said that they ought to be grateful to their medical officers for the steps which they had taken to cut short the epidemic.

THE LANCET.

LONDON: SATURDAY, OCTOBER 7, 1899.

AT the beginning of the week the usual introductory addresses were delivered at such of the large medical schools, metropolitan and provincial, in England as still conform to the time-honoured habit of opening the winter session with words of welcome to their new adherents. We publish these addresses either in full or in abstract, and we think that our readers can hardly fail to be struck, as we have been struck ourselves, by the high level of literary excellence to which the various orators have attained. The matter of the addresses is this year less stereotyped than it has been wont to be, so that it is more than customarily interesting to note the different ways in which the study of medicine has been introduced by men, many of them eminent both in, and beyond, the medical profession, to those about to learn the lessons of academic and practical medical life. Not that the medical student alone is concerned; on the contrary, there is not one of us so old, so experienced, or so practical, but he will find in this year's addresses valuable teaching.

Three of the addresses are philosophical in character, and their subject matter is the loftiest that human thought takes cognisance of. Such questions as the width of the chasm between mind and matter, or how to decide what shall be—for ourselves, at any rate—the limits of the knowable and the unknowable, or how to estimate the comparative educational value of theory and practice, call for great lucidity of expression from those who would assist us to find answers, as well as for high thinking and tried wisdom. And this is exactly the treatment which these questions receive from Sir JAMES CRICHTON-BROWNE, Sir WILLIAM GAIRDNER, and Professor CLIFFORD ALLBUTT. The gist of Sir JAMES CRICHTON-BROWNE'S address to his audience at Owens College, Manchester, is to warn them against "the materialistic slough of despond," begging them, through all speculative misgivings and in the teeth of all perplexities, hopes, and fears, to hold aloft the ideal; to practise that self-renunciation for which the medical profession affords the finest scope; to enter into familiar relations with nature; and in an attitude of reverence and sympathy to maintain the observations and ordinances which the wisdom of ages has consecrated. We need not share with Sir JAMES CRICHTON-BROWNE his estimate of Mr. HERBERT SPENCER as a disseminator of sheerly materialistic doctrines to be thankful for his urgent admonition to draw largely on the bank of faith when the rifts in our knowledge appear impassable. No wiser advice can be given to the young, no sounder can be followed by seniors. Sir WILLIAM GAIRDNER in addressing the students of Mason College, Birmingham, and Professor CLIFFORD ALLBUTT in addressing those of St. Thomas's Hospital have both recognised the difficulties experienced alike by teacher and by taught in estimating the share that should be played in education by theory and practice respectively. Sir WILLIAM GAIRDNER'S address is an able plea in favour of the objective as against the subjective method of instruction. While careful to explain that he in no sense belittles the enormous value of philosophy and humanistic studies, he still urges that the proper education for man is a knowledge of things as opposed to a knowledge of schemes and theories. This, of course, is the actual teaching of a medical school. The discipline of φύσις, which always has been the discipline enjoined upon the medical student, is now more than ever his routine. The lecture is everywhere yielding to the demonstration and the premium set upon practical work grows steadily higher. Therefore we welcome with pleasure Professor CLIFFORD ALLBUTT'S wise explanation of the part which theory plays in an educational system. His words, which at first sight might appear to be in exact opposition to those of Sir WILLIAM GAIRDNER, make us comprehend the use of integrated knowledge, how far it transcends in value that knowledge which comes to individuals by individual, and perhaps oft-repeated because unsuccessful, attempts. The brave struggle after truth, when the method of struggle is not regulated by the lessons of general experience, he describes as "learning by being rapped over the knuckles," and with convincing arguments he shows that here the integrated knowledge of the great masters who have worked for the establishment of general laws to account for special manifestations must be brought to the aid of the student. There is no real antagonism between Professor CLIFFORD ALLBUTT'S ideal of education and the ideal of Sir WILLIAM GAIRDNER, but while both allow that theory and practice are an inseparable pair the former dwells on the rôle of theory and the latter on the rôle of practice. And while it is easy for all medical men to see the part that must be played their education, whether student, practitioner, or savant, by practical work, the necessity for a rightful and free use of theory is not so obvious; so that we think that Professor CLIFFORD ALLBUTT'S words may prove an interesting revelation to many teachers.

Four of the addresses form examples of the historical method of welcoming the medical student; for Dr. DICKINSON, Dr. BYROM BRAMWELL, Dr. MITCHELL BRUCE, and Dr. BLACKER have taken as their theme what may be roughly termed the progress of medicine. Dr. DICKINSON'S vigorous discourse to the students of St. George's Hospital will be read with pleasure by all for its racy eloquence and apt allusiveness. And we trust that one section of his teaching—where he insists upon the respect due to nature and the wisdom of not meddling where we are likely to mar—will sink into the minds of his hearers. His review of the last half-century of medicine, showing how much has been done and how much undone, how the right-minded medical man has learned to abstain from mischievous interference and to use the external agencies of nature, makes excellent reading and is no less excellent teaching. Dr. BYROM BRAMWELL, going over much the same period for the instruction of the medical recruits to the Yorkshire College at Leeds, but treating of rather nearer times than came within Dr. DICKINSON' purview, refers in particular to the great

strides that have been made in this country in biology and preventive medicine. His *résumé* of general improvement in medical methods can hardly fail to inspire the student, as no doubt it was intended to inspire him, with a sense of the importance and practical utility of the profession which he is espousing, so that we trust that no spirits will be dashed by the speaker's concluding remarks that "the prospects of the young practitioner of the present day are in this country at all events inferior to those of the young practitioner of 35 years ago"—a statement which asks for an amount of modification that would be out of place in an introductory address. Dr. MITCHELL BRUCE'S proposition, laid before the students of the Charing-cross Hospital, that the outlook in medicine as a useful art is hopeful in that the scientific method is now being pursued in every department of professional learning, is a corollary to Dr. BYROM BRAMWELL'S words; and, like Dr. BRAMWELL, Dr. BRUCE lays particular stress upon the advances that have been made in preventive medicine. Dr. BLACKER'S address is an exercise in hero-worship, for his historical review, covering about 60 years, deals with the great men of University College Hospital of the past—that hospital which had on its original staff ELLIOTSON, ANTHONY TODD THOMPSON, CARSWELL, SAMUEL COOPER, LISTON, and the first RICHARD QUAIN. From each of these addresses the student learns that he has joined a profession behind which lies no mean past and before which extends a future of fairest promise.

We make no attempt to deal with the subject-matter of all the introductory addresses, but comment only upon those which can be ranged under the head of a philosophical or historical dissertation and which we have been able to print in full. But, in conclusion, we give ourselves the pleasure of quoting Mrs. GARRETT ANDERSON'S witty remark upon the qualities of quackery. "All honest quackery," she says in her address to the students of the London School of Medicine for Women, "is based upon complete ignorance of pathology; dishonest quackery on the conviction or the hope that the patient is completely ignorant of it also." A most happy as well as a most concise description of the gulf that separates the well-intentioned from the venal intruder in the fields of medicine. Alas, that there should be so many intruders and that the ill they do should be equally grave, whatever the inspiring motive.

THE report of the Commissioners of Prisons and the Directors of Convict Prisons for the year ending March 31st, 1899, has been just issued as a blue-book and gives an account of various changes which have come into operation in both convict and local prisons as the result of the Prison Act of 1898. The more important measures refer to such matters as the classification of prisoners, differential prison treatment, visiting boards, limitation of cellular confinement, modes of utilising prison labour, and the regulation of prison diet. Many other collateral points of importance are also treated upon in the voluminous report before us. Sufficient time has not as yet elapsed to permit of an accurate estimate regarding the effect, beneficial or otherwise, of some of the measures which have come into force under the recent Act, but it will be evident from what follows that the tendency is on the whole for good.

Thus, referring to the differential prison treatment, introduced by the Act, of persons sentenced to undergo imprisonment without hard labour the Commissioners write as follows: "It is obvious that there must be an enormous variety of crimes, differing widely in their character, in the element of criminality, and in their effect on society. ..... The man who rides a bicycle on a footpath in contravention of a local by-law or forgets to muzzle his dog finds himself cast, in default of paying a fine, into the same net with the criminal who has been guilty of fraud, violence, or other disgraceful act. In fact, the procedure of the Summary Jurisdiction Act is applied indifferently to all offences triable summarily ....." (p. 6). The new Act, however, allows of a more just award of penalties and punishments, for the courts have now the power conferred upon them (after taking into account the circumstances, the character of the offence and of the offender) of ordering the detention of the prisoner in any one of the three divisions, a separate prison treatment with a varying degree of severity having been devised. If the courts avail themselves of these powers a great step forwards will be made in the direction of classification which is well known to be the most difficult and urgent need of penal systems. The duty of realising these facts and of taking them into consideration in recording a sentence rests with the court and not with the prison authority, and a necessary condition of the success of such a measure must be a knowledge on the part of the magistracy of the methods of prison discipline and treatment. It is therefore satisfactory to learn that the Secretary of State for the Home Department has, in a recent circular on this subject to the courts, expressed his intention of "watching with the greatest anxiety the operation of this section of the new Act." It is pleasing, also, to note that the Commissioners are fully alive to the importance of providing differential treatment suited to the age and character of young criminals between the ages of 16 and 21 years. There are many dangerous young criminals of this age, and there can be no doubt that it is out of this material that the professional criminal, who in later life fills the convict prisons, is evolved. We are convinced that the reformatory methods advocated for dealing with these delinquents will mark a really great step in advance in the treatment of criminality.

Another important change is that brought about by Section 3 of the Act, giving power to the Secretary of State to appoint boards of visitors to convict prisons. This element of unofficial cognisance and control has hitherto existed only with regard to local prisons and has been absent from convict prisons. The new boards of visitors created by the Act and now in operation at each convict prison introduce for the first time this division of powers between the official and non-official authority. The report goes on to state that magistrates and others who have been invited by the Secretary of State to assist in the administration of prisoners as alluded to above are entering upon their duties with zeal and activity. We believe that the public will appreciate the institution of this system of visiting, as we are sure they will the new regulations respecting cellular confinement, corporal punishment, and dietary.

Regarding cellular confinement we find a wise limitation placed to the extent to which this will be permitted in future. Hitherto the law required that local prisoners should be kept in cellular confinement throughout their sentences, though in practice association with others by day was allowed to a limited extent. The new rules provide for associated labour for local prisoners when practicable. Prisoners sentenced to hard labour will be in strict separation for the first month only and after that will be eligible for association. To fully develop this system an increase of staff has been contemplated, the need for which has been fully recognised by Parliament. As regards the infliction of corporal punishment on prisoners it is to be noted that the directors of convict prisons have no longer the power of ordering it, and it is matter of satisfaction to record that during the last year in which such power could be exercised it was only found necessary in three instances in the whole of the population of our convict prisons. Regarding prison dietary it will be remembered that a recent committee (1898) which was appointed by the Secretary of State to inquire into the question recommended the abolition of certain clauses of the old diet-scale and substituted for them a new diet-list of plain and wholesome food adequate to maintain health and strength. The new diet-scale is already in force and we hope that the last has been heard in an English prison of using the food-supply, or rather the non-supply of food, as an instrument of punishment. This can be the only view of medical men.

The statistical records show that the number of prisoners received during the past year in local prisons was 160,059, not including 1394 soldiers and sailors sentenced by courts-martial. The population of the prisons on March 31st, 1899, was 14,156 and the average daily population during the year was 14,957—viz., 12,285 males and 2672 females. The number of male convicts received from local prisons under fresh sentences was 920, in addition to 219 with licences revoked or forfeited. The number of female convicts received under the same conditions was 32, in addition to 18 with licences revoked or forfeited. The number of convicts received under fresh sentences of penal servitude was 730. The great mass of convicts behaved well, misconduct being confined to a comparatively limited number. The statistics also show a steady decline in the numbers of juvenile offenders convicted and committed. The Commissioners record a decrease in the number of cases of insanity among prisoners—from 150 in the previous year to 137 in the year of the report. The death-rate in local prisons was 5·9 per 1000 and 9·1 per 1000 in convict prisons.

UNDER the heading "The Dangers of Doctors Dispensing" the *British and Colonial Druggist* of Sept. 29th prints some remarks upon a subject that has much interest for many of our readers. Making his text the unfortunate accident at Eastbourne whereby Mr. DICK took his own life the writer seeks to condemn wholesale the dispensing by medical men of their own medicines. The medical profession, the chemist, the druggist or dispensing chemist, and (last in order but first in importance) the public are all concerned in the answer to the question raised by our contemporary, who seems to us desirous of saying the last word without duly considering all the necessary aspects. We agree that "the sad accident at Eastbourne by which a medical man lost his life through drinking a poisonous mixture which he believed to be harmless conveys an obvious lesson," but when the writer in the *British and Colonial Druggist* expounds as that lesson the principle that medical men should never dispense their own medicines we find ourselves at issue with him. The lesson which we read from the Eastbourne fatality and similar sad fatalities is this, and only this, that medical men as well as pharmacists should exercise due care in dispensing their medicines. Because one man is careless in the execution of a particular duty we must not urge that that duty should be taken off the shoulders of the entire body of men to which he belongs. It would be as logical to declare that because a lady sometimes loses her purse in future purses should always be carried by a maid.

Again, we cannot accept the following passage by which the *British and Colonial Druggist* supports its contention that medical men should do no dispensing as an accurate description of a general state of affairs, even though it may be a picture of an occasional occurrence: "No doctor is competent to dispense his own medicines, not necessarily meaning by this that he has not had the requisite training, but that his other duties render him incompetent for the duty of compounding his medicines. A medical man in passing from the patient to the dispensary and from the dispensary to the patient engenders a confusion of mental processes that is likely to be reflected in his work." When it comes to guessing at mental processes writers of the most practical bent will find themselves in deep water and, in our opinion, the writer we are quoting is out of his depth. It seems to us more reasonable to suppose that the mental processes of the medical man prescribing for his patient would be three so entirely separate ones that there could be little likelihood of any confusion being engendered. Firstly, he would make up his mind what was the matter with his patient, then he would decide if it were a case for medical treatment, and then fix upon what he would prescribe. Having determined upon the several ingredients of his prescription one by one he would take down the particular bottle in which each is kept and measure out the desired dose. We have no more right to suppose that he would be likely to substitute through mental confusion the dose of one ingredient for the dose of another than we should have to suppose that the druggist habitually misreads prescriptions, because while dispensing one formula he allows his attention to dwell upon formulæ which he has previously dispensed. A medical man while he is prescribing is not wondering what condition in his patient it is that he is prescribing for. He has got beyond that before he started to make up the medicine. There are, moreover, several reasons why medical men are particularly unlikely to make mistakes in dispensing their own medicines. They are obliged to spend a considerable proportion of their early days as students in studying the actions, the peculiar characters, and the doses of drugs; and later, as clinical clerks and dressers in the wards and out-patient rooms of the hospitals, the importance

of drugs and the care to be bestowed upon their use are further impressed upon their minds by the deliberate selection with which they are prescribed by their teachers. Again, the effects of poisons and the liabilities attaching to their administration are indelibly stamped upon their minds by what they witness in the casualty room when a moribund victim, of, say, strychnine or opium, is brought in for treatment. These things make it unlikely that any medical student reaches the position of a qualified practitioner without a due sense of the responsibility which he incurs when prescribing and consequently when dispensing his medicines. The whole tendency of his scientific training emphasises the importance of accuracy—of accuracy in all things; and in what more than in matters of such vital gravity as the prescribing and dispensing of powerful drugs? And while the lessons learned by the student at the most impressionable stage of his career must operate powerfully against any general carelessness in his prescribing, considerations of another nature will weigh heavily upon the medical man in practice. He cannot fail to recognise the disastrous effect which any calamity due to his carelessness must inevitably have upon his reputation and his future. The fear of accident is so present to him at the commencement of his career as a general practitioner that he forms careful habits out of which he cannot be shaken by distracting circumstances.

Medical men are not likely to make mistakes in dispensing their medicines, and if such errors do occur, as they will in all human undertakings, they must be very infrequent. For an accident in prescribing constitutes a calamity that touches the public very nearly, and whenever such an accident occurs the world is fully informed of it. How often do we read of such accidents as the result of a defaulting medical man? Almost never. Yet the amount of dispensing done by the medical profession is enormous. In country practices it is quite obvious that there is no alternative. In many rural localities there is no druggist available, and in others the distances involved in employing him would often render his intervention impracticable. Medical men are not likely to make mistakes in prescribing, we repeat with emphasis, because the insinuation to the contrary is likely to do much mischief—how much mischief the *British and Colonial Druggist* will recognise if we say that their suggestion is comparable to a suggestion that a medical man should dispense his own drugs, because then he would know with that certainty that appertains only to a personal action that his patient gets what is prescribed. There are among medical men individuals who make mistakes, and so among dispensing chemists there must be an occasional one who from some cause or other fails to dispense what the medical man has prescribed. We should be the last to say that because this has undoubtedly occurred all medical men should do their own dispensing, for the advice would be unpractical and the insinuation contained in it mischievous. The public will be best served, not by being deprived altogether of the advantages accruing both to patient and medical man when the latter dispenses, but by finding in the dispensing chemist an absolutely reliable supplement to the work of the medical man.

Annotations.

"Ne quid nimis."

AN APPEAL TO MEDICAL GUILDS AND UNIONS.

DURING the last five years a considerable number of societies have been formed throughout the kingdom for the special purpose of dealing with ethical and economical questions affecting the interests of the medical profession. These medical unions have assumed different titles. In Lancashire they are more generally called Medical Guilds. Where, in fighting the Battle of the Clubs, these medical unions have organised, under their own management, a system of medical aid for the poor, they have, as at Coventry, assumed the title of Public Medical Service; or, as at Weston-super-Mare, that of Provident Medical Association. Others, such as the large body in the East London suburbs, call themselves Medical Protection Societies, while at Nottingham and Durham and elsewhere the more comprehensive and briefer title of Medical Union has been adhered to. The name is, however, but a secondary consideration; the object is the same whatever the title of these professional unions: it is to fight out the Battle of the Clubs, to reform the abuse of medical charities, to contend against advertising and other unprofessional proceedings, and, above all, to unite the members of the profession and to prevent undercutting and all phases of unfair and ungentlemanly competition. These efforts to organise the profession are the subject of a series of articles now appearing in our columns. The same work has been taken in hand by our colleagues on the continent, notably in Belgium and France. It will receive a powerful impetus from the friendly action of the French Government. By a Ministerial decree issued on June 11th, 1898, the holding of an official International Congress on Medical Ethics and Economics in connexion with the Universal Exhibition was sanctioned. In our issue of May 6th last we published a full account of the objects and programme of this Congress and explained the facilities which the French Government would give to its members. In a short time invitations printed in English will be ready; but to whom are they to be sent? They should be addressed to all the medical unions to which we have just alluded and also to those medical and chirurgical societies which, although of ancient formation, have modernised their programmes and, instead of being societies formed merely for social purposes and the reading of scientific papers, have taken an active part in dealing with economic problems that affect the profession. But there is no list of these societies in existence. We have described some of them and are personally acquainted with their members; others exist but we have not received any communications from them and are not acquainted with the names and addresses of their secretaries. Yet it is absolutely necessary that these names and addresses should be forthcoming at once and this for two reasons. We are desirous to include them in our series of articles on the Organisation of the Profession and the managing committee of the International Congress on Medical Ethics and Economics will soon be ready to send them invitations. With regard to the Congress it would be difficult for the French committee to send an invitation direct to each individual member of the medical unions. It would simplify matters if the invitations could be sent *en bloc* to the secretaries of the societies and the secretaries would undertake to distribute them among the members. Therefore we earnestly appeal to the secretaries of all such societies to send us at once their names and addresses and to state at the same time how

many members they have. The information thus obtained will be forwarded to the French committee and in this manner the British medical unions will receive in good time the invitations for the forthcoming important and official Congress. On our side we are anxious to publish as complete a list as possible of all existing medical organisations that deal with economical problems. We appeal to all members of the profession to make this request as widely known as possible and to help us in the efforts which we are making to help them.

THE PREVENTION OF BABY-FARMING.

NOTWITHSTANDING the Infant Life Protection Act, reinforced by the efforts of inspectors, the police, and the press, baby-farmers continue to carry on their atrocious calling. Prosecutions are no doubt fewer than they used to be, and we may reasonably under existing conditions accept this fact as a proof that the offence itself is not quite so frequent. The danger of exemplary punishment which attends its discovery is more distinctly real, and it is deterrent in proportion. Nevertheless the evil exists. Here and there it even seems for a time to flourish. A woman recently convicted at the Central Criminal Court was found to have six children in her house. Two of these were dead and a third died from starvation shortly after an inspector's visit. The fact is noteworthy that at the time of detection in this class of cases it is almost invariably found that one or more children are dead or at the point of death. Mr. Justice Phillimore, who gave judgment in the above-mentioned case, appears to have noticed this peculiarity, for he expressed himself somewhat strongly upon the evidently culpable laxity of the Act or its executive instruments. We are inclined to agree with this criticism. No doubt efforts at evasion must occur from time to time, and these may occasionally have some success. It must always be remembered, however, that the Infant Life Protection Act is intended as a preventive measure. If it is to fulfil its purpose as such it is indispensable that registration and inspection should be carried out at the earliest possible date and a good deal earlier than they are now. We would further suggest that the inspector's visit should be immediately and regularly followed by that of a medical practitioner deputed by the board of guardians or other local authority.

SUDDEN RECOVERY IN A LONG-STANDING CASE OF MELANCHOLIA.

DR. THEODORE DILLER reported an interesting case at a meeting of the Pittsburg Academy of Medicine held on May 29th, 1899. It was that of a married woman, aged 34 years, who had suffered for seven years from melancholia. During the last five years the patient was so listless and apathetic that she had to be dressed and undressed by the nurses who were in attendance upon her, and during all that period she scarcely uttered a single word. On the night of May 16th, 1898, she was undressed and put to bed as usual by her nurse at St. Francis's Hospital. On the next morning when the sister went to get her up to dress her and to place her in the armchair which she had daily occupied for five years the patient was found to be already up and busy making her bed. She greeted the sister cordially and conversed freely with her, telling her that she had got well and would like to go home. From that time to the date of the above communication (May 29th, 1899) she seemed entirely rational. She could speak freely of her recent illness, "gave the names and character of the various physicians who visited her, and related many of the incidents which had occurred during each year of her illness." Dr. Diller observes that no actual dementia could, of course, have existed at all in this case, which is also valuable as illustrating how long melancholia may exist without dementia ensuing, while it also shows the possibility of recovery in such a patient. "A practical lesson which the case emphasises is that a patient with apathetic melancholia although he may not utter a word for years may remember and understand all that is said in his hearing; so that it continually behoves nurses and physicians to be careful as to what they say in the presence of such a patient."

MEDICAL SERVICE IN STATE AT ST. PAUL'S CATHEDRAL.

ON Thursday, Oct. 19th, at 7 P.M., the Bishop of Stepney will preach at St. Paul's Cathedral to an assembly of members of the medical profession. We may remind our readers that this service is the annual one organised by the Guild of St. Luke the Evangelist and Physician and as such is intended to associate the two professions of religion and medicine as co-workers for the good of humanity. A special work which the Guild now has in hand is the provision of medical missionaries for countries outside our own, and the collection on the occasion in question will it is hoped be large enough to assist in promoting this end. At this year's service the Lord Mayor will attend in state; the music will be rendered by a choir of over 200 voices, provided by the London Gregorian Association; and a large gathering of medical men in academical robes is expected. A circular has been sent to every medical man in London and admission will be by ticket only.

MULTIPLE ULCERS OF THE VULVA AND VAGINA IN TYPHOID FEVER.

ON no subject has bacteriology thrown more light than on the manifold and widespead complications and sequelæ of typhoid fever. Meningeal, cardiac, pleural, pulmonary, hepatic, renal, osteal, and many other lesions, have been found to be due to the presence of the bacillus in the affected part. Moreover, it has been shown that the organism may remain latent in a tissue for years after recovery from the fever and then resume activity and produce a lesion. Among rarer typhoid lesions are affections of the female genital organs. Reports of gangrenous affections, abscesses, and other more or less extensive lesions of the vagina and vulva have been collected by Keen, but multiple ulcers do not appear to have been described. This addition to the long list of typhoid lesions is due to Dr. A. G. Lartigau, who observed two cases which are published in the *Boston Medical and Surgical Journal* of Sept. 7th. A girl, aged 16 years, was admitted to hospital on April 3rd. About two weeks previously she was taken ill with headache, pain in the back, and fever. Several days afterwards pain developed on the left side of the vulva, which pain was increased on micturition. On March 31st, two days later, a physician found a number of small superficial ulcers on the labia majora and just within the vagina. On admission the temperature was 102·8° F. and the pulse was 100. The abdomen was tender and the spleen was palpable on deep inspiration. There were 10 or 12 very small (varying from three millimetres to one centimetre in diameter), superficial, round, or less often oval, sharply-defined ulcers on the cutaneous and mucous surfaces of the labia majora and minora and just within the vaginal orifice external to the hymen. The bases were covered with a thin layer of thick, yellow, purulent material. Cultures taken from several lesions showed the typhoid bacillus. The organism was also cultivated from the urine. On April 12th the Widal reaction was positive and the ulcers were healed. On the 16th the abdomen was tympanitic and the spleen was palpable. The temperature became normal on the 30th and convalescence ensued. In the second case a young woman, aged 20 years, was admitted to hospital with severe pain in the loins and headache. She had been

ill about two weeks. The temperature was 103·4°, the pulse was 100 and dicrotic, and the spleen was palpable. Rose spots were found on the third day and the blood on the sixth day gave the typhoid reaction. The subsequent course was that of severe typhoid fever which ended in death on the eighteenth day. On the second day the nurse called attention to a number of ulcers on the vulva. There were nine or 10 small superficial ulcers which varied in size: some were of the diameter of a pea; two or three measured one centimetre. Some were round, others were irregularly oval, all were well defined with sharply cut margins, and the bases were covered with a small quantity of yellow mucopus. Unfortunately no bacteriological examination was made. Dr. Lartigau suggests that the urine, which, as recent observations[1] have shown, frequently contains the bacilli, sometimes in enormous quantities, was the source of infection. But origin from the blood is also possible.

SMALL-POX AND VACCINATION IN THE UNITED STATES AND IN THE AMERICAN ARMY IN MANILA.

ALTHOUGH there have been no widespread epidemics yet small-pox continues to prevail extensively in the United States. It is present to a greater or less extent in many parts of the country, North Carolina being the principal seat of the disease. In Indiana small-pox has appeared in 26 counties. Up to the present time there have been in that State about 400 cases with but four deaths. In Georgia an epidemic is feared. A somewhat peculiar feature of the cases of small-pox which have occurred within the past few months has been their exceptionally mild character, but, as was pointed out in the *New York Medical Record* a short time ago, there is reason to fear, judging from experience of former epidemics, that when the cold months come the disease will prevail in virulent form. Most of the State Boards of Health are taking precautionary measures against such a casualty by recommending isolation, vaccination, and all the known methods for preventing and subduing the malady. Unfortunately, however, in many instances the general public do not grasp the gravity of the situation and display a regrettable apathy, especially as regards the prophylactic virtues of vaccination. Indeed—perhaps led astray by the example of England and by the teachings of the apostles of anti-vaccination—something like a feeling of distrust of vaccination would appear to have sprung up amongst a certain class in America. Another feature to which attention has been frequently called of late is the mistakes made in the diagnosis of small-pox during the last two years. The Indiana State Board of Health have recently issued a circular on small-pox and its prevention which, quoting from the "Journal of the American Medical Association" in reference to this point, says: "The mistakes that have occurred in the diagnosis of small-pox during the last two years have been due in part to the unfamiliarity of a large part of the profession with the lesions of the disease, but in greater part to a change in the type of the disease itself, consequent on the wide practice of vaccination. Most recent cases, indeed, are varioloid, and very few are typical small-pox as described in the books. Despite this the modified form is every whit as dangerous to the public health, for at any time confluent and hæmorrhagic cases may obtain their contagion from a very mild case. Mistakes have been made so easy by the fact that so many cases have been sporadic and the physician had not the help of the known presence of infection to aid in the diagnosis. Vast numbers of cases have been called chicken-pox and from them, lacking isolation, extensive epidemics have arisen." This is quite true, and it is further pointed out that small-pox is chiefly confused with chicken-pox, which latter disease is rare in the adult. The *New York Medical Record* of Sept. 2nd says: "Speaking of the prevalence of small-pox in New York, circulars have been sent out by the State Board of Health calling attention to the prevalence of small-pox in several places in the western part of the State and stating that the spread of the disease at the present time, as was the case a year ago, may be attributed in a large degree to the fact that many cases of small-pox were mistakenly diagnosed as chicken-pox. It is suggested that the local boards of health adopt and enforce rules requiring that all cases of supposed chicken-pox be reported promptly to them in order that such cases may be kept under observation and quarantined if necessary until the diagnosis is definitely established." The argument upon which the anti-vaccinationists chiefly rely is that the wonderful decrease in small-pox is not due to vaccination but to improved sanitation. A letter recently received from a surgeon of the 13th Minnesota Volunteers, now in Manila, notoriously one of the most insanitary towns in the world, affords further proof of the fallacy of this reasoning and, at the same time, once again demonstrates the efficacy of vaccination. Dr. Ritchie, the surgeon in question, says: "April and May are the small-pox months in Manila. 250 deaths a month was not considered an excessive number nor esteemed an epidemic. Since our occupation no such number has occurred and owing to the untiring efforts of Major Bourne, health inspector of the city, the mortality is almost *nil*. Over 50,000 persons have been vaccinated and the good work goes on. ..... Our vaccine is now almost entirely used with the effect that the disease is not only under control but almost 'stamped out.'" The foregoing statement is most valuable testimony in favour of vaccination. The sanitary conditions in Manila were as defective as possible and yet vaccination alone was sufficient to abolish small-pox.

[1] THE LANCET, May 20th, 1899, p. 1346.

EDIBLE FUNGI.

IT is just at the fall of the year, which we are just now experiencing with a somewhat startling suddenness, that the conditions are best for the growth of mushrooms, and the mushroom season commences with the onset of autumn. In a word, the mushroom and other fungi find dew and damp a congenial condition. The mushroom is undoubtedly nourishing, but it is esteemed most for its agreeable and inimitable flavour which renders it such an excellent accompaniment to other dishes. According to analysis, however, only 10 per cent. of the mushroom is solid matter, although no less than half of this proportion consists of flesh-forming or nitrogenous substances. Again, the ash is particularly rich in the most valuable salt in dietetics—namely, phosphate of potassium. Unfortunately, the mushroom has a compeer in the meadow which though in appearance very like the edible variety is yet so distinct as to be highly poisonous. This fact not a little deters many persons from enjoying the delightful fungus. But with a little experience the edible fungus can be distinguished from the poisonous fungus. Thus the edible mushroom generally grows in dry, airy places, while the poisonous mushroom grows in clusters in woods and in shady, damp places; the former, again, is generally whitish or brownish, while the latter has usually patches of bright colour; further, the edible fungus has a compact, brittle flesh, while the flesh of the poisonous variety is usually tough, soft, and watery. On cutting a good mushroom no change of colour by the action of the air occurs, but with the poisonous fungi a brown-green or blue tint appears; the juice of the former is watery, of the latter milky; while the odour, also, of the former is agreeable, that of the latter is very often pungent and disagreeable, and the taste of the edible mushroom is not bitter, acrid, or astringent, properties which frequently characterise the poisonous mushroom. The

symptoms of poisoning by mushrooms simulate sometimes those generally following on the administration of a narcotic, such as drowsiness, giddiness, and dimness of sight, and at other times of an irritant when vomiting and purging are characteristic. The remedy is usually to administer an emetic, while strong tea or a solution of tannin in most cases serves as an effective domestic antidote. The physiological antidote, which, however, should of course only be prescribed by a medical man, is belladonna.

MEDICAL ARRANGEMENTS FOR THE TRANSVAAL.

WE understand that the scheme of medical arrangements, in the event of war in South Africa was prepared in all its details some three months ago. But as the War Office authorities have not considered it advisable to make known to the public any particulars regarding the composition of the army corps (which would doubtless be mobilised) we are unable to publish the professional information which would be so interesting to our readers.

LOCALISED TUBERCULOSIS OF THE INTESTINE.

WE have called attention[1] to a paper by Dr. N. Senn on this subject. In the *New York Medical Journal* of August 19th Dr. W. G. Mayo has published an important communication. He finds that in St. Mary's Hospital, Rochester, Minnesota, 1003 abdominal operations were performed in the last six years of which 64 were for tuberculosis. The latter are classified thus: peritonitis 30, encapsulated collections forming an abdominal tumour three, ovaries and tubes 11, appendix seven, kidneys seven, and intestine six. The intestinal tuberculosis in all these cases appeared to be primary. In adults there is a tendency for the disease to remain local. The most common seat of primary tuberculosis is the ileo-cæcal coil; the sigmoid flexure and lower ileum are also often affected. Dr. Senn has described two forms of disease, one fibrous with great hypertrophy resembling carcinoma, the other ulcerative and more apt to cause stricture. But the two forms often co-exist. The diagnosis is difficult; in only two out of seven cases reported by Dr. Mayo was the disease recognised. A tuberculous family history was present in only two. The general appearance of patients who developed obstruction was good up to the time of the stoppage. In three in whom the ulceration was of the largest extent there was some evening pyrexia. In the majority of the cases alternating constipation and diarrhœa were observed, and in the cases of stricture serious symptoms of obstipation appeared several times before the attack of obstruction rendered relief imperative. In only one case was diarrhœa marked, and here the cæcum and ascending colon were extensively involved. Diarrhœa is in favour of a large extent of ulcerated surface and is common in the secondary disease. The constant symptoms in all cases were colicky pains. A well-marked tumour was present in the cæcal region in three cases. The following case is an example. A woman, aged 37 years, had not been well since the birth of her youngest child three years previously. For six months she had constant pain in the right side and cramps in the bowels. Constipation alternated with diarrhœa and there was occasionally a slimy discharge. Per vaginam a thickening was felt in the right broad ligament. In the right side of the abdomen was an enlargement occupying the position of the cæcum and extending upwards to the lower ribs. Operation showed the cæcum to be enlarged, adherent, and marked with board-like scars. The appendix was involved and lay in the pocket under the ileo-cæcal junction. The right ovary and tube were also involved in the caseating mass. The neighbouring lymphatic glands were enlarged and cheesy. A portion of the cæcum, the appendix, the ovary, and tube were excised. Recovery ensued. Six months later intestinal obstruction necessitated a second operation. The ileo-cæcal coil was involved in a tuberculous process and adherent to the bladder. The ileum was divided eight inches above the ileo-cæcal valve, the distal portion was emptied, and the cut end was turned in and sutured. Anastomosis of the proximal end with the transverse colon was produced by means of the Murphy button. Recovery again followed.

[1] THE LANCET, July 30th, 1898, p. 274.

THE WATER-SUPPLIES OF DERBYSHIRE.

THE fact that water schemes are everywhere to the front shows how the community is waking up to the knowledge that an adequate supply of pure and wholesome water is the first sanitary requirement. It cannot be said that the county of Derby possesses a satisfactory supply, although there is an abundant supply of pure and wholesome water in the county which only needs careful engineering in order to render it available for public use. A very interesting and comprehensive report upon this subject has recently been presented to the members of the Public Health Committee of the Derbyshire County Council by Dr. Sidney Barwise, the county medical officer, and Mr. John Somes Story, M.I.C.E., the county surveyor. It would appear that in Derbyshire there is a population of over 10,000 without any water-supply within a reasonable distance except rain-water stored in tubs. Some 130,000 are dependent upon shallow wells which are liable to pollution, while the public supplies which exist are so insufficient or of such suspicious origin that additional supplies are required for another 130,000. Many available sources of supply have been considered, but peculiar difficulties have been met with owing to the fact that most of the springs in Derbyshire are highly mineralised. At length a scheme was prepared for bringing down the pure waters of the upper reaches of the Derwent, and the scheme known as the Derwent Valley scheme has, under the title of the Derwent Valley Water Act, only just received the Royal assent. By this scheme the joint water board have power to construct six impounding reservoirs in the upper Derwent Valley. The total capacity of these reservoirs will be nearly 10,000,000,000 gallons. Provision has been made for compensation water, after which the county of Derby is to have a prior right of 5,000,000 gallons per diem, that is, to have always a fixed quantity reserved for the use of the county, instead of a percentage of the water, so that in time of drought the county of Derby will still be entitled to this quantity. The remainder of the water is to be divided in the following proportions: the Derby Corporation 25 per cent., the Leicester Corporation 35·72 per cent., the Nottingham Corporation 14·28 per cent., and the Sheffield Corporation 25 per cent. The cost of the scheme contemplated by the joint board is given at £5,500,000, while additional works to be carried out by the different authorities will involve an outlay of £1,145,000, to be borne jointly by the corporations respectively of Derby, Leicester, and Sheffield. It is pointed out that this allocation of water to an administrative county has never been made in any Act of Parliament before, and even where authorities have obtained the right to take water, by paying 4 per cent. or 4½ per cent. upon the proportion of the capital which their share of the water has necessitated being expended, as in the Birmingham and Manchester Acts, the corporation carrying out the scheme has always reserved to itself the right to take the whole of the water if at any time in the future it should require it. In regard to quality the Derwent water is in marked contrast to the water from other sources. It is very soft though it is without action on lead,

having no appreciable acidity like the moorland waters of Derbyshire, except that which is due to carbonic acid. We are surprised to find that no mention is made in the report of goitre or "Derbyshire neck," the prevalence of which has been notorious in the county and ascribed to the fact of the highly mineralised state of the waters derived from the coal measures. Since Derwent water is so pure and soft we should have thought that this point would have been urged with some emphasis in favour of the Derwent Valley scheme.

DIARRHŒA OR GASTRO-ENTERITIS.

THE large number of deaths from infantile diarrhœa which have occurred in all parts of the country during the past few weeks once more emphasises the importance of a uniform nomenclature of diseases. The Registrar-General includes under the heading of "diarrhœa" only such deaths as are due to that disease, although it is well known that when a practitioner records the cause of death as "gastro-enteritis" he is only expressing in different terms the meaning of his neighbour who prefers to write on the death certificate merely "diarrhœa." As diarrhœa is included among the seven principal zymotic diseases it is evident that for comparative purposes the zymotic death-rates during the summer months as given by the Registrar-General are absolutely valueless, for the district in which it is the custom to certify the cause of death as "gastro-enteritis" will apparently have a much lower rate than one where the same disease is called "diarrhœa." That such is actually the case is well shown from the August returns relating to three large towns in South Wales having an aggregate population of nearly 250,000. Merthyr, with a population of 72,000, had a "diarrhœa" death-rate among children under five years of age equal to 5·5 per 1000 persons living per annum; Pontypridd, with a population of 38,000, had a rate equal to 7·0 per 1000; and Rhondda, with a population of 124,000, one equal to 11·6 per 1000. But the death-rate at the same age-period in these towns during August from diarrhœa plus gastro-enteritis—that is to say, the real diarrhœa death-rate—was in Pontypridd equal to 18 per 1000 yearly and in Merthyr and Rhondda equal to 22 per 1000. If we adopt the nomenclature of the Registrar-General the diarrhœa rate in Rhondda is double that of Merthyr though in reality it is exactly the same; his figures again would place the Pontypridd rate at 1·5 per 1000 above the rate for Merthyr, whereas the true rate is 4·0 per 1000 below. That the Registrar-General is aware of, and appreciates, these discrepancies is evident from the fact that in the more recent weekly returns of births and deaths he draws attention in the paragraph which treats of diarrhœa in London to the number of deaths from gastro-enteritis among children under five years of age.

STATE AID IN SCIENTIFIC RESEARCH.

AN instructive comparison appears in an article in the *Times* of Sept. 30th of the advances made in scientific research in England and in Germany, and it is shown that in spite of State assistance in the latter country still England records greater results of progress. This important place in the present progress of scientific knowledge which England proudly occupies is due, according to Dr. Siemens, to the work of rich independent men of science. "Without these 'Dilettanten,'" he remarks, "she would be nowhere." As an instance he quotes the work that was performed in England in private laboratories which was devoted to the determination of the exact value of the units of electrical measurement. In Germany State assistance to the progress of science was limited to providing instruction in physical science, and thus real research after all was left to private effort. There was no support provided for original work. On whose side, then, is the reproach? Until recent years no State assistance was offered in this country for the pursuit of original investigation, so that practically all the splendid discoveries with which English scientific men are justly accredited are the outcome of private research actuated by a desire to seek the truth for the truth's sake. In the application of these discoveries Germany has certainly not been behindhand in adapting them for the improvement of the arts and industries; England, on the contrary, has, oddly enough, been slow to recognise the value of the application of her own discoveries to technical occupation. But public opinion has largely been drawn to this fact and there is promise now of a movement being organised which will give not only a powerful stimulus to original research but also to the application to manufacture of the fresh knowledge gained by these inquiries. Mention need only be made of the scheme for the enlargement of the Government Physical Laboratory at Kew, where researches in theoretical and applied science are to be carried out, and of the research laboratory presented to the nation by Dr. Ludwig Mond. As the *Times* points out it is interesting to note that while Government aid has been necessary to bring about the initiation of the Kew scheme, private effort in a similar scheme was sufficient in the case of Germany; and only at a later stage did the German Government take the financial responsibility of their research laboratories, thus affording a striking example of a reversal of the usual procedure in the two countries.

SERIOUS ILLNESS OF GIOSUÈ CARDUCCI.

AT Bologna, in the university of which he holds the chair of Italian Literature with a supplementary lectureship on the literature of the Romance languages, Giosuè Carducci, Italy's greatest poet since Alessandro Manzoni, is lying dangerously ill—so ill, in fact, as to plunge his compatriots into something like the solicitude and anxiety universal nine months ago throughout the English-speaking world at the life-and-death struggle fought out by Rudyard Kipling. 14 years ago Signor Carducci suffered from cerebral thrombosis with slight difficulty in moving the tongue and right arm. Happily surmounted with no apparent sinister sequelæ the lesion reappeared on the morning of Sept. 25th with distinct aggravation of the old symptoms. Though feeling "not very well" he yet attempted to go out as usual but had very shortly to return in "considerable nervous perturbation," and immediately thereafter was seen by his distinguished colleague Dr. Antonio Murri, professor of clinical medicine. Rest, absolute and continuous rest, is what Dr. Murri prescribes, all the more that he traces the reappearance of the malady to the severe mental strain which Signor Carducci has been imposing upon himself in preparing an edition of Muratori's monumental work, the "Rerum Italicarum Scriptores." He had, it seems, been prosecuting his editorial labours all the summer even in his favourite villeggiatura at Madesimo on the Italian slope of the Splügen Pass and was already far advanced in a learned critical preface when he returned to Bologna for the winter session very little able for its duties. Struck down on Sept. 25th, as stated, he is now being vigilantly tended until the expected improvement so far sets in as to admit of his being conveyed to some quiet resort, presumably in his native Tuscany, sheltered from adverse winds yet open to the restorative sea-breeze. That improvement, indeed, is well-nigh already visible, and he was able not only to be informed of the numerous inquiries received daily by telegraph as to his condition, but even to dictate a brief reply to the affectionate dispatch which reached him on Sept. 29th from Queen Margherite. The author of the "Odi Barbare" which

Mommsen has beguiled his leisure by translating into German; of the noble sapphic ode entitled "Piemonte," in which that cradle of Italy's aspirations and of the heroes who gave effect to them is duly honoured; of the splendid apostrophe to the "Dea Febbre" ere long to take flight from her haunt in the Roman Campagna; and of many another κτῆμα ἐς ἀεί—the author of these, we say, and of the magnificent discourse on the "Mother of Universities" read at Bologna 11 years ago[1] before an audience representing the whole academic world, is too precious to his country and to her oldest seat of learning not to inspire the most fervent wishes for his restoration to health—wishes hardly less loyal throughout Christendom than in Italy herself.

THE PREVENTION OF TUBERCULOSIS.

THE intelligent coöperation of the public is essential for the success of any sanitary reform, and the local authority of Cardiff, recognising this, has adopted an excellent method of enlightening the townspeople with regard to the communicability of tuberculosis. Dr. Edward Walford, the medical officer of health, has drawn up five "leaflets" on this subject, printed on blue foolscap paper surmounted by the borough arms. One of these is evidently intended for general distribution and enumerates various precautions to be taken for preventing the disease spreading from an infected person. Another paper informs medical practitioners that the Health Committee of the Cardiff Corporation, with the approval of the Medical Society of Cardiff, has decided to carry out as far as possible certain recommendations of the medical officer of health, and with this object makes a request for notification of cases of tuberculosis. Another paper is addressed to the occupiers of houses where deaths from phthisis have occurred, and intimates that the sanitary authority will, free of cost, disinfect the infected rooms and their contents. Another paper is apparently intended for the managers and officials of institutions to which meat and milk are supplied; its object is to recommend the use of the tuberculin test for the presence of tuberculosis in cattle and it is accompanied by two forms of contract (*a*) for meat and (*b*) for milk and butter, both of which are of course to be taken merely as suggestions for the framing of clauses to be inserted in contracts that may be made. The contract for meat specifies that it shall be from animals free from any trace of tuberculosis or any other disease, and agrees that the name and address of any person engaged in the preparation of the meat shall, if required, be furnished to the medical officer of health. The contract for milk permits the veterinary surgeon for the borough of Cardiff, in company with the medical officer of health, to apply the tuberculin test to all or any of the milch cows on the contractor's premises and provides that no preservative shall be added to the milk or butter. The fifth "leaflet" is addressed to dairymen, cowkeepers, and purveyors of milk, and gives details of the precautions necessary to be observed in their business.

AN amateur theatrical matinée entertainment has been arranged under influential patronage and will be held in the Royal Lyceum Theatre, Grindlay-street, Edinburgh (kindly lent for the purpose by Messrs. Howard and Wyndham, Limited), on the afternoon of Saturday, Dec. 2nd, in aid of the British Ophthalmic Hospital at Jerusalem. All information can be obtained from the honorary assistant secretary of the hospital in Scotland, Mr. A. A. Gordon, 128, George-street, Edinburgh.

THE LANCET goes to press this week on the seventy-sixth anniversary of its birthday, for our first number was issued on Sunday, Oct. 5th, 1823. The journal has grown considerably during its long life—in fact, from 36 octavo pages to 160 or more quarto pages; and we trust we are not very egotistic when we claim that within these pages lies the history of modern medicine.

THE first Hunterian Society lecture will be delivered on Wednesday, Oct. 11th, at the London Institution, Finsbury-circus, at 8 30 P.M., by Dr. Sansom, the subject being the Effects of Influenza on the Heart and Circulation: their Clinical History and their Treatment. Members of the profession are invited to attend.

DR. ROBERT P. R. LYLE, at present senior assistant master of the Rotunda Hospital, Dublin, has been appointed Lecturer in Midwifery and Diseases of Women and Children in the University of Durham College of Medicine, Newcastle-on-Tyne, in succession to the late Dr. Nesham.

WE remind our readers that conferences, under the auspices of the Hospital Reform Association, will take place in St. Martin's Town Hall on Tuesday, Oct. 10th, at 4 P.M. and 8 P.M., and on Wednesday, Oct. 11th, at 4 P.M.

INSUFFICIENCY OF THE PARIS WATER-SUPPLY IN SUMMER TIME.

(FROM OUR PARIS CORRESPONDENT.)

EVERY summer the water company gives notice to the inhabitants of Paris that if the hot weather continues it will be necessary to add Seine water to the spring water which is supplied to householders—a prospect which is never a satisfactory one for sanitarians. Although the main sewer no longer pours its foul contents into the river below Paris, as used to be the case, the river nevertheless continues to be polluted both above and below the city, firstly by water coming from factories in the neighbourhood where it enters the metropolitan area, and secondly by the sewage of the small suburban parishes. The intake is a little above Paris and the water is brought into the city by means of powerful pumping machinery. Theoretically, the Seine water is not used for human consumption but is reserved for other purposes, such as industrial requirements, for watering streets, courts, and gardens, for water-closets, lifts, &c. In actual practice, however, the pressure obtainable by the pumping machinery, powerful as it is, is insufficient to raise this enormous quantity of water to certain very high-lying parts of Paris, such as Montmartre, Ménilmontant, and the Trocadéro; much less does the water rise to the sixth floor of the houses there. It is therefore necessary in these localities to employ spring water for all purposes, even in manufacturing establishments, for this is the only water delivered at sufficient pressure to rise to that level. This is the reason of the seeming inconsistency which every year arouses the ire of journalists who, without having full knowledge of the circumstances, complain that certain low-lying parts of Paris are reduced to the prospect of drinking Seine water, while on the Trocadéro spring water is used for watering the streets. An enormous quantity of spring water is brought into Paris and is always being increased by drawing from fresh rivers, but nevertheless it is insufficient during intensely hot weather, although at that time a considerable part of the population is out of town and many of those who remain drink mineral waters. There are several reasons for this insufficiency. In the first place, the natural supply cannot help being a little less in summer, while in the second place much more is used for watering streets and gardens and we have seen that a considerable proportion of what is taken for the latter purpose is necessarily spring water. But wilful waste is the principal cause of the insufficiency. Every year when the supply of spring water threatens to fail the water company, in the hope of diminishing waste, puts up public notices to the effect that 200 litres (44 gallons) of spring water per head per day are delivered—a quantity which is more than enough for cooking and drinking but

[1] Vide THE LANCET'S Reports of the Octo-Centenary of Bologna University, June 23rd, 1888, p. 1264.

will not admit of waste and especially will not admit of the use of the water for cooling purposes. The concluding words of the last sentence describe the manner in which the greater part of the spring water supplied to the Parisians is wasted. People are most unreasonable in this respect. In summer time a Parisian insists that the spring water supplied to him must be cold. In order to have it so he keeps the water-tap always running lest the water should become warm by standing in the pipes. On entering a kitchen in Paris in the summer time it is very common to find the bottles of wine, beer, and even of water intended for the evening meal standing in a bucket under the stream from the tap which is kept constantly running. This wasteful practice is the invariable rule in working-class homes and is adopted even by people who are quite able to obtain an infinitely better cooling effect by the purchase of a pennyworth of ice. A doorkeeper's wife (*une concierge*) has been known to keep the water-tap running the whole day in her courtyard in order to cool the place where she would be sitting in the evening. Under such circumstances and with such waste a milliard (£40,000,000) would not cover the Paris water-supply and the Seine itself laid on to private houses would fall short of the quantity required. The water company has tried different means of preventing this waste but all in vain. In particular, it has everywhere fixed water-taps which close themselves automatically by means of a spring when the hand is removed, but tradesmen immediately put on the market an ingenious little contrivance which fitted the tap accurately and kept it always open by bearing against the wall. The use of these appliances is strictly forbidden and when the company's men discover them on their visits of inspection those who have them in their possession are fined. All this, however, is of no avail and it will obviously be necessary to have recourse to the only practical method—namely, that each suite of rooms should have its own water meter just as it has its gas meter. At present there is only one water meter for each house and the landlord to whom the house belongs pays the water company for what is used; he in his turn charges the tenants for their personal consumption a fixed sum which they pay quarterly at the same time as their rent. This system has the disadvantage that by the wastefulness of one tenant the landlord may have to pay much more than the proportion repaid quarterly by the tenant. On the other hand, if the landlord gets into arrear with the water company the latter, in the exercise of its legal rights, may cut off the supply from the house—that is to say, from all the tenants, although they are in no way at fault, because they have already paid the landlord for their water. This is a favourite resource of the water company during the hot weather, when the most trivial pretext is taken advantage of in order to save water, and it has attracted the attention of the Hygienic Commission, which has just presented a report to the Municipal Council urging the council to compel the company (1) to refrain from punishing the tenants when the landlord is at fault, and (2) in the event of the latter not meeting his liabilities regularly to proceed against him as an ordinary debtor without resorting to the summary and cruel procedure of cutting off the water from an entire house. In some houses in Paris there are from 200 to 300 tenants and the effect of cutting off the water is that none of them have water for drinking or washing or flushing the closets. It is with special reference to the last of these questions that the Hygienic Commission has made its report to the Municipal Council. The company might be liable to prosecution for infringement of the law of July 10th, 1894, relative to the maintenance of public health in Paris and for breach of the regulation which requires that everything should be turned into the sewer. The water company has also brought upon itself much hostile criticism from all quarters, from municipal councillors, sanitarians, and private individuals, for the high-handed manner in which it exercises its rights. The bringing of the water to Paris costs it nothing, for the city defrays all expenses connected with the intakes as well as for the construction of aqueducts and reservoirs. The company charges very high for the water, reserves the right of cutting it off on the slightest pretext, and, worst of all, it makes a profit out of a multitude of arbitrary details very vexatious to the consumers. For instance, it reserves the right of sending its own men to do all the repairs which it considers urgent, charging the consumer for these repairs two or three times as much as an ordinary tradesman would ask. Men in the employ of the company are continually visiting houses to examine the state of the pipes and taps; they say that repairs are necessary, they come back in a little while to do them, and at the end of the month a bill for extra charges of 30 or 40 francs is sent in. It is useless to have either the bill or the work examined by an expert or to complain to the law courts. It is especially stipulated in the agreement that none but the company's workmen may interfere with the water-fittings; if an action is brought the company has the right of setting aside the agreement and cutting off the water as long as the case lasts, and as an action may be kept up by a clever lawyer for several years no one ventures to attack a company possessed of such powers. When its concession expires it will probably not be renewed and the water-supply will be undertaken by the city. Meanwhile the company is carrying out extensive works for the purpose of increasing the supply of drinking-water to Paris. Immense filtering ponds for Seine water have just been completed at Ivry. These ponds, situated at the riverside, one kilometre (five furlongs) from the ramparts, will be able in case of necessity, and especially during the hot season, to supply 32,000 cubic metres (7,040,000 gallons) of water purer than ordinary water, containing fewer microbes and less lime and nitrogen, but not quite so cool. This water is equal to half that consumed by the population of Paris during the hottest weather in excess of the normal consumption. A pond of this kind was constructed some months ago at St. Maur. The filtration of Seine water is in fact one of the most ingenious methods of solving the serious problem of supplying Paris with drinking-water. It is less costly than bringing in spring water, because drawing from fresh streams becomes increasingly difficult and troublesome on account of the demands of landlords and riparian owners. Filtration yields a water the purity of which is much more constant and more certain because no pollution from the neighbourhood has access to it, a thing which unfortunately is not always the case with ordinary water (*l'eau des sources*). It is probable that other ponds of this kind will be constructed in the environs of Paris. A daily supply now amounting to 274,000 cubic metres (60,480,000 gallons) of spring water and filtered water will for the future be available for the city of Paris. Of this quantity 220,000 cubic metres are drawn from the Avre, the Dhuys, the Vanne, &c., and 54,000 are furnished by the filtering ponds at St. Maur and the new ponds at Ivry. The water company's officials assert that from this time henceforth there will be no necessity for resorting to the use of Seine water except in the event of 20 consecutive days of extreme heat, an assumption which has not been realised since the commencement of the century.

THE MEDICAL SCHOOL DINNERS.

SOME of the medical schools make of the opening of the Winter Session an opportunity for the meeting together of old students at an annual dinner, and these functions, while doing good to the schools, at the same time serve to maintain a pleasant spirit of comradeship.

King's College Hospital dinner was held at Limmer's Hotel on Oct. 2nd. There was a large gathering of old students present. Prominent among these was Dr. Deville, a hale and hearty veteran whose student days lay back in the forties. The speeches, as usual, were lightened by musical interludes. Special mention was made of the extensive additions to the anatomical and physiological departments at the college, now in course of construction, in aid of which Mr. Balfour has consented to preside at a dinner in the course of November. The hospital, too, has only just been reopened in the full glory of parquet floors and electric light throughout all the wards. Among other improvements of the immediate future the committee of management of the hospital have in hand a scheme for the complete rebuilding of the out-patient department of the hospital. These works will of course involve a very heavy expenditure, towards defraying which all friends of the college and hospital are urged to lend a helping hand.

The London Hospital old students' dinner was held in the library of the hospital on Oct. 2nd and was in every way a success. The fare provided was excellent and conviviality was infectious notwithstanding the fact that by holding the

reception in the Museum some feelings akin to those of the old Egyptians when the mummy was carried out at their feasts must have been felt by at least some of the laymen present. The toast of "The Queen" having been duly honoured Dr. G. E. Herman, the chairman, proposed the toast of the evening, "The London Hospital and College." He said that the history of the London Hospital was the history of a great corporate body which went back 140 years and, he believed, would go forward very many years in the future. The present was a critical time in medical education because the London University would enter upon a new existence next year and what its influence on medical education might be nobody could tell. A great deal had been heard about the centralisation of hospital teaching and the medical school of London Hospital had every claim to be constituted such a centre. It was attached to the largest hospital in London which afforded the greatest field for clinical teaching as well as the most numerous prizes to students in the shape of house appointments. He ventured to state that if all the large London hospitals were that night to take over all the patients in the wards the London Hospital could replace them on the morrow by a number of cases quite as interesting. The school had just been very much enlarged and re-equipped and the new accommodation for the teaching of bacteriology had been pronounced perfect by Mr. Haffkine.—Mr. W. D. Hoare, responding to the toast, said that when the work now going on was finished the hospital would be a perfect institution. It was the aim to make the medical school the best in London or the provinces.—Dr. Daly also responded and Mr. E. H. Fenwick proposed "The Guests."—Mr. Haffkine, in a brief speech sparkling with wit, said in response that the bubonic plague was a most fascinating subject, but his information was just sufficient to make him feel that the less said about it the better. There was a possibility, however small, of the plague coming to this country, and he would give from his experience some advice as to what should be done to meet it. It was generally accompanied by a great amount of inventiveness as to the proper steps to be taken, and the best way of abating that symptom was to give the inventor's scheme a fair chance as far as circumstances would permit. This plan was generally effective as far as the inventor was concerned for the rest of his days.—A vote of thanks to the chairman terminated a very pleasant evening.

The Middlesex Hospital.—The annual dinner of the past and present students took place on Oct. 2nd at the Trocadéro Restaurant; Mr. A. Pearce Gould being in the chair. There were 200 present and the evening was in every respect a most successful one. After the loyal toasts had been duly honoured the chairman proposed the "Middlesex Hospital and its Medical School." After referring to the satisfaction which all connected with the hospital must feel at seeing such a large and representative gathering Mr. Gould commented on some of the great advances which the hospital and school had recently made and also on the mutual benefit which had accrued from the closer union of the two which took place some three years ago. While the hospital had been supplied with all the most modern improvements for promoting the welfare of the patients, the latest addition being an entirely new wing to be set apart for patients suffering with cancer, the school also had been almost entirely rebuilt and the new laboratories, splendidly equipped as they were for all the modern requirements of teaching and research work, had given the Middlesex Hospital a medical school of which all might be proud.—This toast, which was enthusiastically received, was replied to by Sir Ralph Thompson on behalf of the hospital and by Dr. W. Pasteur for the school.—Sir Ralph Thompson, in noting the progress of the hospital, especially referred to the new cancer wing which had just been built and to the complete arrangements which were being made to ensure a thorough scientific study of that disease under the direction of the bacteriologist of the hospital. Reference was also made to the good work which was being done by the Clacton Convalescent Home where several beds had been set apart for the open-air treatment of tuberculosis.—Dr. W. Pasteur (the Dean) was able to adduce many good reasons for the flourishing condition of the school. The pass lists during the past year had been eminently satisfactory and those at the London University had been particularly brilliant. The entry of new students again showed an increase—a sure sign that the good work which was being done in the school was being duly appreciated outside.—The "Past and Present Students" was proposed by Dr. Cayley who referred feelingly to the deaths of Sir William Flower, Mr. Kenneth Lawson, and others who have passed away during the past year.—Mr. Balding, in the course of his reply for the past students, referred to the gratifying fact that during the year the Honorary Fellowship of the Royal College of Surgeons of England had been conferred on two past students of the school, Mr. W. D. Spanton of Hanley and Mr. Charles Tomes.—Mr. F. G. Thomson replied for the present students.—The toast of "The Visitors," coupled with the names of the Rev. T. N. Hart-Smith and Mr. Wilhelm Ganz, was proposed by Sir Richard Douglas Powell, after which Dr. Coupland proposed "The Chairman," and an enthusiastic reception of this toast concluded one of the most successful evenings ever held by Middlesex men. The excellent musical arrangements were, as usual, in the hands of Mr. Wilhelm Ganz who was assisted by Mr. Richard Green, Señor Guetary, and Mr. Paul Stoeving.

St. Bartholomew's Hospital.—The old students' dinner was held in the Great Hall on Oct. 2nd. There were about 170 in all present. Among the guests were the President of the Royal College of Surgeons of England, the Master of the Society of Apothecaries, the Regius Professor of Medicine in the University of Cambridge, and Mr. Briton Riviere, R.A. Dr. Lauder Brunton was in the chair. After the usual loyal toasts Professor Clifford Allbutt gave the toast of "The Hospital and School." In reference to the latter he dilated upon the especial importance of laboratories for clinical research, pathology, and pharmacology. Other toasts followed and after dinner an adjournment was made to the library for coffee and tobacco.

The St. George's Hospital School dinner was held at the Whitehall rooms, Hôtel Métropole on Oct. 2nd, Mr. Pickering Pick, consulting surgeon to the hospital, being in the chair. The total number that sat down to dinner was 141. The toasts of "The Queen" and "Prosperity to the Medical School" were proposed by the chairman and responded to by Dr. Isambard Owen, the dean of the school; "The Governors of the Hospital" was proposed by Dr. William Ewart, the senior physician, and was responded to by Mr. Timothy Holmes, treasurer of and consulting surgeon to, the hospital; "The Orator of the Day" was proposed by Mr. William H. Bennett, surgeon to the hospital, and replied to by Dr. W. H. Dickinson; "Past and Present Students" was proposed by Mr. Clinton Dent, surgeon to the hospital, and responded to by Mr. E. J. Spitta, of Clapham Common, on behalf of past students, and by Dr. E. A. Houseman, the senior resident house physician, for present ones.—Mr. Mellish, of Wells-next-the-Sea, after having been called upon for a speech by some of his friends, returned thanks for both past and present men.—"The Chairman" was proposed by Mr. Warrington Haward, senior surgeon to the hospital, and Mr. Pick replied.—During the evening the chairman sent a message of congratulation to the members of the staff of Charing-cross Hospital who were dining under the same roof and received from them a gracious reply. The dinner was generally pronounced to have been a distinct success and the thanks of the meeting were due to the manager of the rooms for the ready way in which he arranged an overflow table literally at the last moment.

St. Mary's Hospital.—The annual dinner of past and present students and of the athletic clubs was held on Oct. 2nd at the Holborn Restaurant, Dr. Sidney Phillips being in the chair. One of the largest gatherings of St. Mary's men ever assembled sat down to dinner in the King's Room, including the majority of the staff and many old students who had made long journeys in order to be present. Among the company were Sir William Broadbent, Colonel A. T. Norton, C.B., Dr. W. B. Cheadle, Mr. Edmund Owen, Dr. Lees, Dr. H. A. Caley, Dr. Maguire, Dr. F. St. George Mivart, Dr. Spicer, Dr. Luff, Dr. Handfield-Jones, Dr. Danford Thomas, Mr. Malcolm Morris, Mr. G. Anderson Critchett, Mr. Silcock, Mr. Plimmer, Mr. Juler, Dr. William Hill, Mr. H. S. Collier, Mr. George P. Field (Dean), Mr. A. J. Pepper, Fleet-Surgeon T. J. Preston, R.N., Colonel Rahilly, Mr. B. Thornton, J.P., Mr. J. R. Walker, Mr. A. S. Brown, Mr. Havell, Major A. C. Preston, Mr. Hardwicke, Mr. G. G. Bird, and Mr. Thomas Ryan (secretary). In proposing "St. Mary's Hospital" the chairman briefly reviewed the rapid growth and remarkable progress which had established for the hospital a reputation second to none for efficiency and good management. He attributed this success, both of the hospital and school, mainly to the great

qualities of their Dean, Mr. George P. Field, and referred in appreciative terms to the valuable services rendered for many years to the hospital, and more recently to the school, by the secretary, Mr. Thomas Ryan.—In replying to the toast Mr. George P. Field made a characteristic speech. He said that it would be the last he would deliver as Dean at the annual dinner, as after 16 years he was about to quit the helm. The dominant note of his speech was not retrospective, as is common in such circumstances, but a confident prediction that the days in the far future, when Dr. Caley and Mr. Collier, now respectively their youngest physician and surgeon, had become the seniors, the hospital would be even more progressive and successful than now. He referred to their great successes during the past year, mentioning specially the winning by Dr. Dodgson and Dr. Lawrence of the highest honours of the year at the University of London—the gold medal and the scholarship and gold medal in the M.D. and M.S. examinations respectively. He heartily endorsed the chairman's appreciation of the great value of Mr. Ryan's services both to hospital and school.—In a witty speech, which drew a reply not less witty from Dr. Sidney Phillips, Mr. Edmund Owen proposed "The Chairman," and the dinner terminated with some excellent music.

St. Thomas's Hospital old students' annual dinner was held at the Whitehall Rooms of the Hôtel Métropole on Oct. 3rd, Dr. S. J. Sharkey being in the chair. There were 178 present. The first toast, that of the "Queen and the Royal Family," was proposed by the chairman and loyally responded to. The next, the toast of the evening, "St. Thomas's Hospital and Medical School," was proposed by Professor Clifford Allbutt in a speech full of witty remarks and quaint reminiscences of his varied experiences as an examiner. He felt that he was expressing the feelings of examiners of to-day when he said that it was no longer the candidate who was afraid of the examiner but the examiner who dreaded the candidate, so great was the advance that had taken place in medical education. He referred to the museum of St. Thomas's Hospital as second only to that of the Royal College of Surgeons of England.—The toast was coupled with the name of the treasurer, Mr. J. G. Wainwright, who spoke of the improvement in the finances of the hospital that had taken place during the ten years that he had been treasurer. Considering the fact that he was spending large sums of money on the operating theatres, surgical wards, sanitary arrangements, and two new children's wards he would still boldly ask for further support, especially as owing to the depressed state of agricultural property the income of the hospital in that particular direction had diminished. He would like to acknowledge the support which he had received from the governors and other officials. Dr. Hawkins (the Dean) responded on behalf of the staff and the lecturers. He commented on the steady and satisfactory work done in the school. As regards athletics the results during the past year had not been very good, but as usual the cup for shooting again adorned the club. He referred to the few changes which had occurred in the staff and the lecturers.—Mr. W. F. Brook responded on behalf of the past students who, scattered over the world, might, he thought, be considered as a greater St. Thomas's.—Sir William Mac Cormac proposed the toast of "The Visitors," mentioning among others Professor Clifford Allbutt, Sir Henry Norbury, Surgeon-General Jameson, and the Italian Ambassador, Baron de Renzis.—The Ambassador, replying for the guests, said that times had much changed since Molière had made the empirical practitioners the victims of his facile pen; he raised his glass to English science.—"The Health of the Chairman" was proposed by Mr. G. C. Franklin, who referred to the days when he met Dr. Sharkey abroad as Radcliffe Travelling Fellow and to the good influence exerted by him on St. Thomas's Hospital and its students.—Dr. Sharkey referred to the loyalty and enthusiasm of both staff and students to their *alma mater*. The staff endeavoured to keep the hospital in the van of progress and at the same time were not forgetful of the creature comforts of the students. He commented on the harmony existing between the staff, the treasurer, and governors, and referred especially to the debt of gratitude due to the treasurer.—A vote of thanks to the honorary secretaries, Mr. Cuthbert Wallace and Dr. Box, proposed by Dr. T. G Nicholson, brought to a close a most successful evening.

University College Hospital.—The usual annual dinner of old students was held at the Hotel Cecil on Oct. 2nd. About 100 covers were laid and Dr. T. D. Griffiths of Swansea occupied the chair. The toast of "The Queen" was given by the chairman. This was followed by the toast of "University College Hospital," the chairman referring to the great services rendered to the hospital by Dr. Sydney Ringer and Mr. Christopher Heath, both of whom having reached the age-limit will retire from office next year.—Mr. Christopher Heath replied and called the attention of old students to the necessity of securing the sympathy of the public in financially supporting the new hospital which is being built entirely from funds supplied by Sir J. Blundell Maple.—Dr. G. V. Poore proposed the toast of "The Chairman" and Dr. J. Rose Bradford that of "Professor E. N. Schäfer," and expressed the universal regret of all well-wishers of University College Hospital that Professor Schäfer was about to leave them to take up new duties in Edinburgh.—A very pleasant evening was spent and the proceedings were brought to a close by singing the National Anthem.

THE SPREAD OF PLAGUE.

PLAGUE is still prevalent in Russia, Oporto, Alexandria, Mauritius, India, and Hong-Kong. Beyrout has been declared infected and it is feared that plague exists in the neighbourhood of Delagoa Bay. In Oporto, to which city the disease in Portugal is confined, there were 17 cases of plague during the month of September with four deaths. Some interesting details as to the visit of the Commission of the Pasteur Institute will be found in the letter of our Paris Correspondent.

In Mauritius the disease appears to be diminishing. For the week ending Sept. 21st there were 71 cases with 38 deaths, while for the week ending Sept. 28th there were 55 cases with 33 deaths. With regard to Hong-Kong a telegram received on Sept. 25th stated that "last week there were 16 cases of plague and 16 deaths." A telegram received on Oct. 2nd states that in the previous week there were two cases with two deaths. Information concerning the plague in Russia will be found in a letter from Dr. F. G. Clemow published in another column, and the epidemic in India is dealt with in the article by our Indian Correspondent.

REPORT FROM THE BOMBAY PLAGUE RESEARCH LABORATORY ON PERCHLORIDE OF MERCURY AS A DISINFECTANT.

WE have received a copy of a report presented by Dr. E. L. Marsh to Mr. Haffkine, on the result of experiments made in the laboratory on the efficiency of perchloride of mercury in disinfectant solution as an application to cowdung floors and on the utility of saturating cowdung or mud floors with sea-water before spraying them with perchloride of mercury. The composition of the disinfectant employed in Bombay for house disinfection consists of perchloride of mercury 21 parts, chloride of ammonia 15 parts, hydrochloric acid 100 parts, and water 340 parts. Five ounces of this solution are diluted in a gallon of water, which gives a solution containing the perchloride in the proportion of 1 in 725. It is shown that 100 square feet of floor space, calculating only a depth of one sixteenth of an inch, would require approximately eight gallons of the 1 in 725 acid solution to vitally damage any contaminating plague micro-organisms. But as the perchloride of mercury solution has only a surface action, if the contaminating material were below the immediate surface, or on the surface and protected by leaves, bits of rag, &c., then with this application there would be very little effect. The application of sea-water before spraying with perchloride of mercury solution is of no greater advantage than the addition of a chloride to the solution of the mercury chloride. The use of sea-water has certain disadvantages, owing, firstly, to its being an appreciably alkaline solution and as such adding to the factors against which the perchloride of mercury has to contend, and, secondly, to its containing an abundance of organisms the destruction of which would in part engage

the energy of the disinfectant solution. Dr. Marsh, however, found that electrolysed sea-water sprayed on the infected cowdung was a valuable adjunct to perchloride of mercury in the disinfection of native floors, not so much for its germicidal action as for its power of *oxidising and neutralising* the basic ingredients of the mud and cowdung which interfere with the efficiency of the perchloride of mercury.

Public Health and Poor Law.

LOCAL GOVERNMENT DEPARTMENT.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Sheffield Urban District.—When the population of Sheffield was enumerated at the census of 1881 it was found that the estimated population was 26,280 in excess of the actual and in 1891 the estimate was 14,291 above the census figures. Although this is not so serious as is the case of Liverpool, where the estimate was no less than 100,659 too high, Dr. John Robertson, the medical officer of health of Sheffield, is nevertheless fully justified in throwing in his lot with those who advocate a quinquennial census. The estimated population of Sheffield for 1898 was 356,478, but these figures are thought to be now too low. The birth-rate for 1898 was 33·8 and the general death-rate 20·2 per 1000; the infantile mortality was 195 per 1000 registered births. Referring to the question of vaccination Dr. Robertson draws attention to the ominous fact that there is much inefficient vaccination performed in Sheffield—performed, that is to say, in such fashion that but little protection against small-pox is afforded; indeed, Dr. Robertson goes so far as to say that "a considerable proportion of the vaccinations done in Sheffield give little if any protection." Having regard to this fact we are not surprised to learn from the report before us that the Corporation have decided to erect a small-pox hospital. Diphtheria has in past years figured but lightly in the records of Sheffield, but during 1898 the disease appeared in a virulent form and has since persisted, the death-rate from this disease having been 0·26 per 1000. Enteric fever was, too, very prevalent during 1898, the death-rate being 0·40 per 1000, a rate exceeded by only one of the 33 large towns (Sunderland) and equalled only by one (Norwich). Dr. Robertson regards the epidemic of enteric fever as due to the succession of seasons favourable to the propagation of the disease. He thinks that "during the autumn of these years the infection has been spread to new areas and that the infection in these new areas not having been killed out by unfavourable seasons we have now an accumulation of infected places." The storing of fæcal matter and urine in the confined backyards of the city which is necessitated by the privy-midden system is evidently the great blot upon the well-being of Sheffield which Dr. Robertson is anxious to have removed, and we are glad to see later in the report before us that the staff for converting privies into water-closets has been so augmented that double the amount of work can now be performed. Dr. Robertson has also drawn up, in addition to his annual report, an excellent special report on "The Prevalence of Tuberculosis and the Measures for its Prevention," in which he endeavours, partly by means of diagrams showing the mortality from, on the one hand, the "six most common causes of death," and, on the other hand, from the "six most dreaded infectious diseases," to bring home to his readers the magnitude of the death-roll from tubercle.

Kensington Sanitary District.—Dr. Orme Dudfield's report is, as usual, full of detailed information upon many subjects, some interesting to his district alone, others to Londoners as a whole, and yet others to all concerned with public health administration. It is, however, a somewhat bulky volume and it is useless to attempt in a brief review such as this to do more than draw attention to certain matters of interest; moreover, we have in past years referred to many of the points dealt with in this report. The population of the whole parish, estimated to the middle of 1898, was 172,000, there being as regards sex distribution 36,060 females in excess of males. The figures which Dr. Dudfield gives as to the growth of the parish of Kensington both as to population and rateable value are most interesting to all students of social science. In 1801 the population of the parish was 8556 and in 1823 its rateable value was but £75,916, as against a value in October, 1898, of £2,135,981—i.e., about one-sixteenth of the whole metropolis. The general death-rate of the parish for 1898 was 16·3 per 1000, or 2·4 below the rate of the metropolis as a whole. The infantile mortality unfortunately remains high, being in 1898 as much as 180 per 1000 births, as against a rate of 167 for London as a whole. As was to be expected, the rate differed largely in the several districts of the parish. We have no space to deal in detail with the district rates of mortality, but reference must be made to the renowned "Notting Dale" special area which had in 1898 an estimated population of 4000. The death-rate of this district for the year in question was no less than 45·5 and the zymotic mortality was 5·5 per 1000, while the infantile mortality reached the high figure of 419 per 1000 registered births. The outbreak of typhus fever which occurred near Ladbroke-grove in March, 1898, and which has already been fully reported upon by Dr. Dudfield in his monthly reports, is again referred to in some detail in the volume before us. The outbreak is of considerable interest as illustrating the manner in which this now almost unknown disease may smoulder on without being detected. As Dr. Dudfield observes, however, no blame is to be attached to anyone for failing to recognise the disease, inasmuch as but few medical men of the present day have had an opportunity of becoming familiar with the disease and many have never seen a case. The outbreak here referred to was first brought to the notice of the authorities by the suspicious circumstance that a medical man and an undertaker were admitted almost simultaneously into the Western Hospital certified as suffering from enteric fever but in reality suffering from typhus fever. The medical superintendent subsequently recognised the disease and communicated forthwith with Dr. Dudfield, who the same day received the notification of three other cases from the parish infirmary. These three cases had been sent in from what were known as "Western Dwellings," and on visiting this locality and inquiring into the circumstances it was discovered that typhus fever had persisted in these dwellings in an unrecognised form since Christmas, 1897. There were in all 15 cases and their connexion with the first case was traced without much difficulty Dr. Dudfield found excessive overcrowding and its attendant evils associated with the outbreak, and the manner in which he was able to trace out the connexion between the cases is very interesting. The advantage of having highly trained medical officers at our fever hospitals is also brought prominently out in this instance and it suggests the question as to whether it would not be possible to make the medical officers of these hospitals available for consultation *qud* the diagnosis of doubtful cases. The Kensington Vestry is apparently still having its disinfection performed by contractors, and in 1898 the sum of £717—irrespectively of the wages of the disinfector—was paid. Dr. Dudfield has repeatedly pointed out that this expenditure could be enormously reduced were the work done without the intervention of a contractor, and it is difficult to understand why the vestry neglects to act upon the advice. As is pointed out in the report the money saved could be put to useful purposes in other directions. The vestry have been apparently considering the desirability of erecting a disinfecting station and with it the shelter which they should surely long since have provided under the duties imposed upon them by Section 60 of the Public Health (London) Act, 1891.

Halifax Urban District.—The corporation of Halifax, acting doubtless upon the advice of Mr. D. Ainley, their medical officer of health, are determined not to be caught asleep by the advent of small-pox, although the town has been free from the disease for the last two years. There is, however, a plentiful crop of the "conscientious objector" and hence the Sanitary Committee, foreseeing danger ahead, have determined to make temporary provision for small-pox at a spot some four miles distant from the town until such time as the new small-pox hospital is ready for the reception of patients. We see no recommendation in the report before us that the conscientious objectors should be called upon to pay for this special provision; doubtless they have already created a grievance from the fact of their having had to procure the necessary certificate of exemption. The public health department has in the past had relation with the water-supply of Halifax only when questions of "health" have arisen and it does not seem, as far as we are capable of reading between the lines, that the interests of "health" have in the past been of sufficient

consequence to justify a survey of the gathering ground. During the past year, however, the medical officer of health was called upon, perhaps in consequence of the Local Government Board circular, to make an inspection of the gathering grounds of the chief sources of supply. Mr. Ainley refrains from quoting his report as to the result of his inspection, but he adds that "a number of possible and probable sources of contamination, both human and animal, were discovered and it is pleasing to know that the Waterworks Committee took immediate steps, in some cases buying up large tracts of land so as to have entire control of the watershed and as far as possible prevent the remotest chance of pollution which has played such havoc in other towns." We quote these remarks verbatim because we have no wish in any way to be unfair, but we are nevertheless anxious to ask why this survey which has apparently led to such far-reaching results was not made earlier? Mr. Ainley reports that during the Christmas holidays the sanitary inspectors thoroughly disinfected every elementary school available and he advises that this work should in future include Sunday-schools, churches, and chapels. If, Mr. Ainley remarks, "the law requires the farmer to limewash his cowshed twice a year in the interests both of his cattle and the public, why should the above places be left alone year after year?"

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 33 of the largest English towns 6490 births and 4186 deaths were registered during the week ending Sept. 30th. The annual rate of mortality in these towns, which had declined from 26·8 to 20·6 per 1000 in the five preceding weeks, further decreased to 19·1 last week. In London the rate was 16·7 per 1000, while it averaged 20·8 in the 32 provincial towns. The lowest death-rates in these towns were 12·6 in Bradford, 13·4 in Norwich, 14·3 in Croydon, and 14·4 in Halifax; the highest rates were 25·8 in Hull, 26·0 in Salford, 26·5 in Liverpool, and 27·9 in Preston. The 4186 deaths in these towns included 712 which were referred to the principal zymotic diseases, against numbers decreasing from 1918 to 964 in the five preceding weeks; of these, 411 resulted from diarrhœa, 95 from diphtheria, 84 from "fever" (principally enteric), 61 from whooping-cough, 33 from measles, 27 from scarlet fever, and one from small-pox. The lowest death-rates from these diseases were recorded in Croydon, Plymouth, Bristol, Derby, and Halifax, and the highest rates in Portsmouth, Bolton, Preston, and Sheffield. The greatest mortality from whooping-cough occurred in Portsmouth, Leicester, and Bolton; from "fever" in Portsmouth, Birkenhead, Salford, and Sheffield; and from diarrhœa in West Ham, Birmingham, Salford, Preston, and Gateshead. The mortality from measles and from scarlet fever showed no marked excess in any of the 33 large towns. The 95 deaths from diphtheria included 44 in London, 13 in Sheffield, eight in Leeds, six in Birmingham, and three in Leicester. One fatal case of small-pox was registered last week in Hull, but not one in any other of the 33 towns; and no small-pox patients were under treatment in any of the Metropolitan Asylums Hospitals on Saturday last, Sept. 30th. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 2886, against numbers increasing from 2538 to 2758 at the end of the four preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 133 and 138 in the two preceding weeks, further rose to 156 last week, but were 41 below the corrected average. The causes of 45, or 1·1 per cent., of the deaths in the 33 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Portsmouth, Cardiff, Leicester, Salford, Leeds, and in 14 other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Liverpool, Manchester, and Sheffield.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had decreased from 24·1 to 19·0 per 1000 in the four preceding weeks, further declined to 18·4 during the week ending Sept. 30th, and was 0·7 per 1000 below the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 14·1 in Leith and 15·6 in Paisley to 19·4 in Dundee and 24·8 in Greenock. The 562 deaths in these towns included 81 which were referred to diarrhœa, nine to "fever," eight to diphtheria, five to scarlet fever, five to whooping-cough, and four to measles. In all 112 deaths resulted from these principal zymotic diseases, against 225, 174, and 147 in the three preceding weeks. These 112 deaths were equal to an annual rate of 3·7 per 1000, which was 0·4 above the mean rate last week from the same diseases in the 33 large English towns. The fatal cases of diarrhœa, which had decreased from 193 to 114 in the three preceding weeks, further declined to 81 last week, and included 40 in Glasgow, 15 in Edinburgh, and 11 in Dundee. The deaths referred to "fever," which had been 15 and 11 in the two preceding weeks, further declined last week to nine, of which six occurred in Glasgow and two in Dundee. The eight fatal cases of diphtheria exceeded by three the number in the preceding week, and included three in Edinburgh and two in Greenock. The deaths from scarlet fever, which had been three and eight in the two preceding weeks, declined again last week to five, of which four occurred in Glasgow. The five fatal cases of whooping-cough showed an increase of two upon the numbers in the preceding week and included three in Glasgow. Of the four deaths from measles two occurred in Glasgow and two in Greenock. The deaths referred to diseases of the respiratory organs in these towns, which had been 68 and 64 in the two preceding weeks, rose again to 67 last week, but were 20 below the number in the corresponding period of last year. The causes of 33, or nearly 6 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had declined from 37·4 to 29·8 per 1000 in the three preceding weeks, rose again to 33·3 during the week ending Sept. 30th. During the thirteen weeks of the quarter ending on Saturday last the death-rate in the city has averaged 30·5 per 1000, the rate during the same period being 20·6 in London and 18·6 in Edinburgh. The 223 deaths registered in Dublin during the week under notice showed an increase of 23 upon the number in the preceding week, and included 69 which were referred to the principal zymotic diseases, against 80 and 51 in the two preceding weeks; of these, 28 resulted from measles, 27 from diarrhœa, 11 from "fever," two from whooping-cough, one from diphtheria, and not one either from small-pox or scarlet fever. These 69 deaths were equal to an annual rate of 10·3 per 1000, the zymotic death-rate during the same period being 2·2 in London and 3·1 in Edinburgh. The fatal cases of measles, which had been 23 in each of the two preceding weeks, rose to 28 last week. The deaths referred to diarrhœa, which had been 45 and 20 in the two preceding weeks, rose again to 27 last week. The 11 fatal cases of "fever" exceeded the number recorded in any previous week during the year. The mortality from whooping-cough was slightly in excess of recent weekly numbers. The 223 deaths in Dublin last week included 49 of infants under one year of age, and 34 of persons aged upwards of 60 years; the deaths both of infants and of elderly persons were below those recorded in the preceding week. Four inquest cases and five deaths from violence were registered, and 76, or more than a third, of the deaths occurred in public institutions. The causes of 12, or more than 5 per cent., of the deaths in the city last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

Inspector-General of Hospitals and Fleets Thomas Browne has been placed on the Retired List.

The following appointments are announced:—Surgeons R. N. Richards and M. W. Falkner to the *Doris*.

ROYAL ARMY MEDICAL CORPS.

Major Robert M. Buist is placed on temporary half-pay on account of ill-health.

Colonel E. Townsend, C.B., is appointed Principal Medical Officer, Belfast District.

As will be seen from an announcement in another part of our present issue the scheme of medical arrangements in the event of war in South Africa, was prepared in all its details some three months ago, but the War Office authorities have not considered it advisable yet to make known to the public any particulars regarding such arrangements.

The *Times* states that the following officers will leave Southampton to-day (Friday) for South Africa in the *Braemar Castle*:—Lieutenant-Colonel A. H. Anthonisz (in medical charge), Lieutenant-Colonel H. Grier, Lieutenant-Colonel R. D. Hodson, Major R. W. Barnes, Major R. W. E. H. Nicholson, Major F. D. Elderton.

INDIA AND THE INDIAN MEDICAL SERVICES.

The notification placing the services of Captain W. Carr (Bengal), at the disposal of the Government of Bengal is cancelled.

Surgeon-Lieutenant-Colonel W. B. Slaughter, R.A.M.C., officiates on the Administrative Medical Staff of the Army, with the temporary rank of Colonel, vice Colonel N. B. Major, R.A.M.C., invalided.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Lieutenant A. D. Ducat to be Surgeon-Captain. Surgeon-Lieutenant James Pearson Brown, 5th Volunteer Battalion Princess Louise's (Argyll and Sutherland Highlanders), to be Surgeon-Lieutenant.

VOLUNTEER CORPS.

Rifle: 3rd Volunteer Battalion the Royal Fusiliers (City of London Regiment): Surgeon-Lieutenant W. K. Pauli resigns his commission. 3rd Volunteer Battalion the Bedfordshire Regiment: Surgeon-Major D. Thomson to be Surgeon-Lieutenant-Colonel. 1st Volunteer Battalion the Duke of Wellington's (West Riding Regiment): Surgeon-Lieutenant G. G. Oakley to be Surgeon-Captain.

VOLUNTEER INFANTRY BRIGADE.

North Midland: Surgeon-Major F. H. Appleby, 4th Volunteer Battalion the Derbyshire Regiment, to be Brigade-Surgeon-Lieutenant-Colonel on appointment as Senior Medical Officer to the Brigade.

DEATHS IN THE SERVICES.

Surgeon-General Sir Charles Alexander Gordon, K.C.B., on Sept. 30th, aged 78 years. He entered the army as assistant-surgeon in 1841, was made surgeon in 1846, deputy surgeon-general in 1860, and surgeon-general in 1874. He was present with the 16th Lancers at the battle of Maharajpore in 1843, for which he obtained the Bronze Star. He also had medical charge of a force in an expedition in 1848 on the West Coast of Africa, for which services he was thanked in a despatch. In the Indian campaign of 1857–58 he was in medical charge of Frank's force in its advance to Lucknow, including the actions of Chondu, Umeerpore, and Badshagunge was present with the 10th Regiment at the siege and capture of Lucknow; he also had charge of Lugard's force, including the relief of Azimaghur, the capture of Jugdespore, and the action of Chitowrah. For these services he was twice mentioned in despatches and received a Companionship of the Order of the Bath and a medal with clasp for Lucknow. In 1860–61 he had medical charge of the force under Sir Charles Staveley left in occupation of Tien-tsin, China. During the Franco-German war of 1870-71 he was sent by the War Office as medical commissioner to the French army and was in Paris throughout the siege and bombardment, and in recognition of his services with the besieged army he was elected a member of the Council of the Société de Secours aux Blessés, an honorary member of the Ambulances de la Presse and of the Ambulance Evangélique, and received from the Provisional Government the Legion of Honour. Sir Charles A. Gordon, who was an honorary physician to the Queen, retired in 1880, and was promoted to be a K.C.B. on the occasion of Her Majesty's Jubilee.

Deputy Inspector-General William Patrick, on Sept. 18th, from the effects of an accident in the hunting field at Martock, aged 74 years. He joined the Royal Navy as surgeon in 1847, became staff-surgeon in 1856, fleet-surgeon in 1869, and retired in 1881 with the rank of deputy inspector-general. In 1857 he was present at the destruction of the Fatshan flotilla of war junks (China medal with the Fatshan clasp), and in 1860 served during the New Zealand War at Taranaki with the landing party from the *Niger* at the destruction of the Moari pah.

Deputy Surgeon-General Charles Moore Jessop, on Sept. 30th. He served with the Scots Fusilier Guards in the Crimea from June, 1855 (medal with clasp and Turkish medal). He also was present with the Royal Artillery at the capture of Canton on December 28th, 1857 (medal with clasp). The late officer entered the service as assistant surgeon in 1855 and was promoted to surgeon in 1868, surgeon-major in 1873, brigade-surgeon in 1881, and retired with the honorary rank of deputy surgeon-general in 1884.

Correspondence.

"Audi alteram partem."

THE PLAGUE IN RUSSIA.

To the Editors of THE LANCET.

SIRS,—The following additional facts concerning the outbreak of plague near the mouths of the Volga are of such interest that I again ask for a little space in your columns to bring them before your readers.

On Sept. 3rd (15th) a representative meeting was held in St. Petersburg to discuss the nature and origin of the outbreak. A list of those present—15 in number—is before me and it includes the names of most of the leading members of the profession in the Russian capital. As a result of the discussion it was found that opinions were divided. A minority of six (which included the names, not unknown to English readers, of Professor Sklifosovski, Professor Lukianof, and Professor Remmert) regarded the disease as the pneumonic form of plague. A majority of nine, on the other hand (among whom were Professor Pashutin, Professor Kudrin, and Dr. Ragozin) considered the facts brought forward insufficient to justify a definite conclusion as to the nature of the disease. In view of this division of opinion the meeting decided to send three of its members (Dr. Vinogradof, Dr. Raptchevski, and Dr. Shidlovski, respectively the professor of pathological anatomy, the director of the bacteriological laboratory, and the acting professor of hygiene in the Imperial Army Medical Academy) to make further investigations on the spot, and to report fully on their return.

The alarm recently caused in Samara by the appearance there of a fatal and unusual form of disease appears to have subsided. The town was visited by the Prince of Oldenburg and two other members of the Plague Commission who recently published the result of their inquiries. The cases were limited to eight, four of which proved fatal, and the disease is stated to have been "a particularly severe form of malaria, accompanied by secondary infection from the alimentary tract with croupous inflammation of the lungs and erysipelas, and having nothing in common with bubo plague." The precautionary measures have therefore been abandoned and Samara has been declared plague-free.

I am, Sirs, yours faithfully,

London, Sept. 30th, 1899. FRANK G. CLEMOW.

THE INDIAN MEDICAL SERVICE.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of July 1st in an annotation upon "The Responsibility of the British Empire in the Matter of the Investigation of Disease" you make the following remarks:—"With our naval and military medical departments, and our Indian Medical Service, and our colonial medical officers, we have at our disposal a machinery which should certainly yield substantial results, but the questions at once arise—Is this machinery being worked in the best manner? and is there not need of a chief engineer, as it were, who would coördinate all these various forces and focus them to a more useful issue?" Having been in practice for the last twenty years in one of the principal

cities of the Indian Empire, I feel that I am in a position to assist in a small way in the elucidation of this subject.

There are in the Indian Medical Service without doubt many of the best men who enter the medical services of our Government, and who have come to India armed with the best training which our medical schools can give them; here they are in sole and independent charge of hundreds of large hospitals and dispensaries and they have unrivalled opportunities of seeing and investigating every form of disease known to the tropics. Their pay is on a more liberal scale than in either of the other medical services, and their opportunities of leave are generally sufficient to insure health and long service. But when we look through the long list of the members of this service the question inevitably arises, What advantage has been taken of all their splendid facilities for original work and what new remedies and new methods of treatment of numerous diseases which ravage these countries do we owe to this large body of highly educated men? The Indian medical colleges are crowded with eager pupils who are under the tuition of the members of this department. What has it done to furnish these native practitioners with new remedies and new methods of treatment to take to the teeming millions of India? You can count upon your fingers those who during the last twenty years have done much to advance our art by original work, while some of the most valuable discoveries have come not from men of this service but from outsiders who have only been a short time in the tropics. What is the reason? In the first place, I have said that the members of this department have exclusive charge of all the large hospitals in India. It must be difficult for you at home to realise the fact that if the President of the Royal College of Physicians of London or of the Royal College of Surgeons of England were to start practice in any large city in India and were to offer his valuable services gratis he could not get his little finger into one of these huge hospitals on any condition whatever, not even if he offered to assist an apparently overworked Civil Surgeon by taking up a department which was neglected.

There are in the great centres of population now many well-trained native practitioners. Some of these have been taught in Great Britain and have good qualifications, others have learnt all that the Indian colleges could teach them, but these men cannot, nor is it desirable that they should, all seek the service of Government, but whatever their abilities or social position they, together with any other well-qualified British practitioner, are for ever cut off from hospital practice. Those qualifications which in Canada, Australia, or at home hold good to secure a share in hospital appointments are throughout India null and void. Can this utter absence of healthy competition have anything but a disastrous effect upon the progress of medical science in this country? Surely we owe much in Europe to the emulation caused by the public work of medical charities. There may be a dozen qualified medical men in a large Indian city; two of them are the Civil Surgeons and are in entire charge and control of a hospital of 400 beds. The 10 will be in absolute ignorance of what is going on in the hospital. They may be meeting with cases which may puzzle them, they know that such cases are in all probability being treated in the hospital, and that as likely as not in consequence of the Civil Surgeons being too busy to thoroughly investigate them these cases are left to the care of underlings of inferior or of the most elementary training. To such men is almost entirely relegated post-mortem and pathological investigation, so much so that this vast field of knowledge is practically unexplored by the front rank of the profession in India. Hundreds of Englishmen and thousands of natives are dying from fevers the causes of which the most learned of the profession out here have not fathomed and in which the most skilful daily have to confess miserable failure in treatment. Very little can those in the department or out of it learn from those who, if at home, would be looked to for guidance. Even in the matter of hospital reports on subjects of special interest to all earnest workers in these countries red-tape and official routine prevent ready and early access to such original work as is done by the heads of the profession; to outsiders the best of it is only available in the Reports of the Army Sanitary Commissioners two or three years after it has been executed. But to this state of things is added another which has as bad an effect upon the work of this great department as it is unfair to every member of the profession in India not in Government service. Every Civil Surgeon, however large is his hospital or however numerous are his public duties, is allowed unlimited private practice.

The officials of the Indian Civil Service, as the governors of the country, naturally give a tone and set many an example which is followed by the remainder of European society, and it follows that the European merchants and better classes of natives look upon the Civil Surgeons as a superior order of medical men, for are they not in sole charge of the hospitals and in attendance upon the great officials? The consequence is that the best energies and most of the time of many of the most highly qualified men in the service is devoted to private practice. The height of the ambition of every junior in the department is to get to some large city where he will be able to make a fortune at private practice. In the largest cities of India, and especially in the mercantile centres where are the largest hospitals and the most splendid opportunities for the original investigation of disease, are also the best appointments of the department, valued as such by its members because of the lucrative private practice which must come to the Civil Surgeons. An energetic man who cares to take full advantage of his opportunities in such a place will have contracts with mercantile firms to attend the employés and with the merchants to attend their families; he will leave his hospital with hundreds of in-patients to be looked after by understrappers while he goes miles to vaccinate a baby or to open the boil of a paying patient; he may spend nights at simple midwifery cases and be too tired to give much attention to the hospital in the daytime. He naturally looks down upon one who is not a member of the service as an interloper who is interfering with his perquisites and, I regret to say, usually treats him with scant courtesy. On the other hand, an outsider, though he may have sat on the same college bench and hold quite as good qualifications, is severely handicapped in the competition for practice. Every Government official, however highly paid, is provided by the State with free medical attendance. This is of course necessary where the only medical men available are members of the Indian Medical Service, and fifty years ago, even in the large towns, it was necessary, for there were very few other British practitioners, but at the present day there are many reliable men in practice in these larger cities. In consequence, in these places the Civil Surgeons, although they take the cream of the general practice, do not as heretofore have it all their own way, and many officials both military and civil employ outsiders. It certainly is now quite unnecessary in the Presidency towns or many other chief cities of the provinces, either that wealthy officials should claim free medical attendance or that the highly-paid members of the Indian Medical Service should be allowed to devote the bulk of their time and energies to private practice, especially amongst the non-official public. There would be no objection to consulting practice.

One seldom sees a reference to this great department in the medical journals which is not in its praise and less frequently does one see adverse criticism of its work and methods. This is not because the medical press is in any way closed to honest criticism, but it arises from the fact that the non-official practitioners in India feel their position as one of utter helplessness in the presence of the formidable array of officials who stamp them before the eyes of the public as belonging to an inferior caste and whose hatred as fellow practitioners they must incur if they speak out what they know. However real the abuses and however honest the protests they will be attributed to professional jealousy.

The statements which I have made with reference to hospital administration and private practice and the inferences which I have drawn may appear audacious, but they are true and must be admitted by every honest man in the service. As to the engineer who is to coördinate the forces running to waste in India, we may hardly expect to find him out here, for the heads of the department are amongst those who have gained most by private practice. At the same time, the high officials whose duty it is to put things right have as medical attendants and personal friends those who believe they would be injured by change.

I am, Sirs, yours faithfully,

August 20th, 1899. TWENTY YEARS IN INDIA.

*** We think that our correspondent's long residence and experience in India entitle him to a hearing. No doubt his letter will not go unanswered. We therefore reserve any editorial expression of opinion until a later occasion.—ED. L.

THE ORGANISATION OF THE PROFESSION.

(FROM OUR SPECIAL COMMISSIONER.)

(Continued from p. 911.)

The Manchester Medical Guild.—A History of Five Years' Work.—Advertising and Quackery Checked.—The Profession Pledge Themselves not to Compete for Contract Work.—An Object Lesson.

THE Manchester Medical Guild was formally established in October, 1894. Dr. Henry Simpson was its first President and was well fitted, by reason of the high position he had acquired, his tact and authority, to hold this post. Many contentious discussions were brought to an harmonious conclusion by the skilful manner in which he conducted the debates. But previously to the creation of this Guild there existed the Manchester Medico-Ethical Association. This was not a numerous body, but it rendered good service in affording an opportunity for the discussion of economical questions. Here in February, 1894, Dr. Alexander Stewart read an important paper (which was published and circulated among members of the profession) dealing with the economic side of the provident dispensary system. After exposing the abuse and the underpay he concluded that the fault was not in the system itself but in the method of application. Then he insisted that the remedy for these evils was to be found in union, organisation, and coöperation, and said:—

"The ideal, to my mind, would be one large powerful association for the whole of Manchester and Salford with district branches, one for each Parliamentary division or other suitable area. Call it a Guild—a good old name and short. The objects of the Guild would be to promote mutual counsel and support by regular meetings and other means. The branches should enjoy a certain degree of autonomy, but subject to the control of the parent stem in order to secure continuity of life and uniformity of action as far as wise and needful. Thus organised, the question of providing medical attendance for the working classes could be taken up—how best to procure medical attendance for the poor and for all who are not able to pay the usual private fees."

It was not long before this proposal was realised and to-day Dr. Stewart is the honorary secretary of the Guild which he was desirous to see established. The first annual report published by this organisation deals with the work done in 1895. One of the earliest questions discussed was that of provident medical aid, which was considered a good thing in itself, but so abused in practice that it often became "a grinding tyranny." It was found that in the Manchester district the friendly societies rarely paid more than 3*s.* per annum per member for medical aid and in some societies the payment was only 2*s.* 6*d.* That this was considered insufficient by at least some of the members of the friendly societies is proved by the fact that though subscribing to their "club doctor" they frequently consulted a "private doctor" and paid the usual fees. Of late years, however, this habit was on the decrease, and the practice of employing the "club doctor" as the "family doctor" to attend to the wife of the member is not so general. Thus the "club doctor" found that his work increased and his income decreased. Such appointments, therefore, must be judged on their own merits and not on the indirect advantages which were supposed to accrue but which experience showed are rarely realised. The question therefore now arose whether a medical man could live by club appointments alone and the council of the Guild after due investigation concluded that he could not. They therefore urged that the minimum rate of payment should be raised to 4*s.* per annum for those who lived within a radius of one mile from their medical officer's residence. Further, no one should be admitted to membership without first undergoing a medical examination, and a fee of 2*s.* 6*d.* should be paid for this examination; certificates of sickness should be charged for at the rate of 1*s.* each; ordinary medical fees should be claimed for all cases coming under the Employers' Liability and Lunacy Acts; and the governing bodies of the friendly societies should aid the members of the profession in the detection and prevention of abuse. These rules are to apply only to clubs composed of healthy men.

The provident dispensaries at Manchester and Salford were supposed to provide for the class which is too well off to attend as out-patients at the hospitals and yet not able to pay the usual medical fees. The council of the Guild on investigating this matter reported that, in their opinion, the medical officers of these provident dispensaries were insufficiently paid. In many instances they did not receive more on an average than 3*d.* per consultation, and the highest sum ever attained was 7½*d.* In 1894 the medical officers had received £2600 from 26,007 subscribers, or about 2*s.* per member per annum. Then, as these provident dispensaries are not under medical control, there is no wage limit enforced and it is claimed that the medical officers should be able to decide who should be admitted. While the medical officers were underpaid, receiving but £2600 out of £4390 paid in weekly subscriptions, the reserve funds amounted to £1419 19*s.* 9*d.* This state of affairs was, however, so widespread that it could not be easily altered, and before any serious attempt could be made the members of the profession must be organised in a more effective and widespread manner.

The council of the Guild in its annual report then proceeded to discuss and denounce the Medical Aid Associations established by industrial insurance companies. One of these companies had boasted that it employed in different parts of the country about 1000 medical officers. This more modern development excited the surprise of the Guild. During the last quarter of a century the cost of commodities has greatly decreased and the earnings of the industrial portion of the population have increased. On the other hand, medical education now costs more in time and money than formerly; why, therefore, should medical men be paid less? The only explanation given is the general tendency to try to get everything at the very cheapest possible price and the skill of the paid agents of these companies who are able to inveigle both the members of the profession and the public. After quoting the conclusions of the report of the committee appointed to consider the question of medical aid associations by the General Medical Council and published in 1893, the Guild expressed its regret that no attempt was made to find a remedy for evils which were acknowledged to be in existence. The whole question had been dismissed because the committee had "not disclosed the prevalence of any offences with which it falls within the statutory province of the Council to deal." The Guild in the face of that declaration urged that members of the General Medical Council should be made directly responsible to the opinion of the profession. It was not desirable that medical men should be the paid servants of lay committees and should be sweated by commercial enterprises. The council of the Guild was, however, of opinion that the Medical Acts under which the General Medical Council hold their disciplinary powers are capable of a very different interpretation from that officially given as a reason for their inaction. The Guild urged that the ethical law against canvassing and advertising, personally or by an agent, could with advantage be converted into a penal enactment. This would not interfere with the legitimate work of the friendly societies and would be welcomed by the profession. The Guild also laid down the principles that should govern all contract work—namely, a wage limit; no profits or reserve fund to be built up out of the subscriptions paid for medical attendance; the medical officers to be controlled only by a medical committee; no canvassing or advertising to be allowed; no one medical officer to have more than 1500 members on his list living within two miles of his residence, &c. But all these reforms can only be brought about by combined action on the part of the profession and therefore the work of organisation was the first of all necessities. Such, briefly, were the results of the investigations made by the Manchester Medical Guild during the first year of its existence.

With regard to the action taken, practitioners were warned by circular against a new "Medical Aid" about to be established, resolutions were passed against a provident dispensary for "touting," and copies were sent to the General Medical Council. A "private dispensary" advertised by printed leaflets was denounced. The medical officers of a dispensary were assisted to obtain some reforms. A branch of the Guild was established at Accrington. A remonstrance was sent to the Manchester and Salford Provident Dispensaries for advertising and two cases of advertising in newspapers were reported to the General Medical Council. A case of advertising cards was brought to the notice of the

licensing authority. A resolution was passed that patients in rate-supported hospitals and fever hospitals should be allowed to send for outside practitioners at their own expense. Communications were opened with the Members of Parliament in charge of the Bill on insurance of children, as it affected the duties of certifying medical officers. A case of personation and advertising was reported to the General Medical Council and a case of "covering" was also dealt with. Finally, a report was drawn up concerning the Midwifery Nurses' Bill.

On Jan. 30th, 1896, the second annual meeting was held and the next month a case of "covering" was stopped by the action of the Guild. A report on Provident Medical Aid, which had been a subject of constant discussion during the previous five months, was adopted. The Guild now proceeded to discuss the registration of midwives. In March a friend of a member of the council of the Guild was accused of improper conduct. The matter was carefully investigated and the accusation proved to be false. An advertising M.R.C.S.Eng. was reported to the General Medical Council and an investigation was instituted in regard to a notorious quack. Aid was promised to a practitioner so that he might prosecute a medical aid society which was alleged to have canvassed in his name though he was not connected with the society. Then a business firm had issued to the public a list of the names and hours of the "consulting physicians and surgeons of Manchester." A circular on this matter was sent to the gentlemen whose names were thus advertised in many cases without their knowledge and consent. A charge of "underselling" was brought against a member of the council, investigated, and settled by the member honourably withdrawing from the contract. The scale of fees for certifying lunacy paid by a certain board of guardians was discussed and circulars were sent to all the practitioners of the district. Measures were taken in regard to a district nurse who had attended a case of injury without the supervision of a medical man and measures were taken so that she should not act in this manner again. A new propaganda by the Provident Dispensary was inquired into and representations were made, so that this also was stopped.

In January, 1897, the Salford Board of Guardians were approached in regard to the appointment of a certifying surgeon for lunacy cases and were persuaded to advertise the appointment and throw it open to the local members of the profession. At the same time assistance was given to the practitioners of Wigan to establish a medical guild in that town. It was on Jan. 27th that the third annual meeting was held. The next month the case of an unqualified person practising medicine was taken into consideration and a case against "a midwife and her cordials" was reported to the authorities that had granted her certificate. In March the Apothecaries' Society was induced to move against a quack calling himself "professor." The question of consultants meeting "sixpenny doctors" was discussed but no conclusions were adopted. In June complaints were made against a well-known agency for assisting a medical aid society in obtaining medical officers and locum-tenents. The steps taken by the Guild will, it is believed, prevent this recurring. During the same month a practitioner had accepted office under a medical aid society whose previous medical officers were endeavouring to obtain certain reforms. This action was strongly condemned by a special resolution. The next month the dean of the Manchester Medical Department of Owens College was communicated with, suggesting that the students be addressed on the ethical side of their duties. A sympathetic reply was received. In August the Registrar of the Royal College of Physicians of London wrote that the Censors' Board had condemned the action of an advertiser about whom the Guild had sent up a complaint. During the following months long discussions were held on the questions of a minimum tariff of fees and on hospital reform, and the charging of fees to hospital patients was condemned. The profession was warned against a new "Friendly Society and Medical Aid Club" with the result that eventually this new venture was abandoned. In November a branch of the Guild was established at Middleton. At the same time an attempt was made by the minister of a chapel to set up several medical aid societies. He had secured the services of a well-known local practitioner. The Guild, however, at once took steps to prevent this and were successful, for the practitioner concerned, when the matter was fully explained to him, readily and honourably withdrew his connexion with these societies. In December action was taken in regard to an advertising "private club" and against the Medical Aid Department of the Manchester Warehousemen and Clerks' Provident Association. Measures were also adopted to raise the scale of fees paid by a certain life assurance company.

During the year 1898 many discussions were held on quack practice in various forms, medical aid associations, midwives, provident dispensaries, club and allied practices, consultations with "cheap doctors," a tariff of fees, unprofessional advertising, hospital reform, guild extension, &c. In regard to the latter seven meetings were held in different parts of Manchester and Salford. A convener was appointed for each district so as to call the profession together whenever occasion might arise for united action. In May meetings were held at Manchester to consider hospital reform. A committee was appointed which brought about the election of a joint committee representing the hospitals on one side and the medical societies of Manchester on the other, both desiring to deal with the question of hospital reform. Appeals were made to all practitioners to bring forward evidence on the prevalence of hospital abuse and a proposition was carried condemning the exaction of fees from patients treated in charitable institutions that are supported by voluntary contributions. In regard to the tariff of fees it was found that the fees of reputable practitioners varied so greatly that it was very difficult to establish a uniform rate. But the Manchester Medico-Ethical Association had proclaimed that 2*s.* 6*d.* should be the standard minimum fee of the district and the Manchester Medical Guild did not think it expedient to interfere with this decision. The Medico-Ethical Association, together with the Medical Guild, made a further investigation into the question of "Club and Allied Practices," and a joint report was issued, but no action was taken except by the Middleton Medical Guild, and there all the members formally resolved not to accept any clubs in future for less than 4*s.* per head per annum. This was considered a practical but not an ideal solution of the difficulty. The Guild, by appealing to the Royal College of Physicians of London, succeeded in stopping the issue of handbills by a Licentiate advertising his hours of consultation, &c. The exploitation of medical men by laymen was to some extent restricted by the adoption and the publicity given to the following resolution:—

> With reference to the promotion of provident medical aid clubs by laymen the Council of the Medical Guild strongly deprecates the action of any medical man who, by giving such aid as permits the intervention of any third party between medical practitioners and their patients, deals a severe blow at the best interests of the profession as a whole.

During the year 1897 the subscription of 5*s.* per head per member of the Guild amounted to £49, so that there were 196 members. At the present time the membership slightly exceeds 200. In 1898 the council of the Guild held 16 meetings and there were numerous meetings of the committees on hospital reform, on club practice, on the Midwives Bill, the Vaccination Bill, &c. All these questions were also fully discussed at the quarterly meetings of the entire Guild. Memoranda were drawn up on the Midwives and Vaccination Bills and sent to the local Members of Parliament and to the Members in charge of these Bills. Great regret was expressed that the Legislature had rendered vaccination optional, thus overlooking the fact that all sanitary legislation is based on compulsion. It was thought, however, that the wiser sections of the population would continue to avail themselves of the proved protection which efficient vaccination affords. The old-standing grievance against the Manchester Warehousemen and Clerks' Provident Association was partially settled this year. The prospectuses and reports of this association advertised, it was said, the names of the medical officers and consultants and were used for canvassing purposes. This practice has now been abandoned. On the other hand, the Guild failed in its efforts to make the association impose a wage-limit. The opinion of the council of the Guild was asked as to whether practitioners should stamp their names on the printed labels of their medicine bottles and the council decided that this was inexpedient. The question was also raised of boycotting "sixpenny doctors," but the Guild concluded that they were not yet strong enough to carry out efficaciously such a measure and that for the moment they must content themselves with bringing moral pressure to bear. A great deal of educational work has been accomplished in this and in other respects. These efforts have met with considerable encouragement and the improvements already realised give fair promise

of greater progress in the near future. During the course of the year a deputation of the Manchester Medical Guild was sent to Cardiff to aid the local practitioners in that town to form a similar association. Also on July 1st the Guild started an organ of its own called the *Medical Guild Quarterly*, which was at first sold for 1*d*., but the price has now been raised to 2*d*. By this means those members who have failed to attend the quarterly and other meetings are informed as to the questions at issue and the local practitioners are now able to place on record their views. In an editorial article in its first number this organ of the Guild states that:—

"Whilst on every side unity and organisation are being used to obtain for various divisions of labour the best conditions possible the medical profession alone remains disunited, disorganised, and without effective power. In commercial acumen far behind the individuals with whom it has to deal, the profession offers a weak and vulnerable front to the exploiting forces constantly arrayed against it."

Then Dr. Alexander Stewart points out that:—

"The tradition of the profession is in danger of being lost because so many young practitioners swell the ranks every year without the previous training in the minutiæ of general practice which the old system of apprenticeship preserved. Few practitioners nowadays keep assistants, so keen is the competition and so low the general run of fees in private practice. There are thus within the profession itself the elements of a struggle for existence which intensifies the stress of competition."

Dr. Henry Simpson, after describing the difficulties that beset the young practitioner, maintains that unless he is in "a position of pecuniary independence it is difficult to see how the struggle for maintenance is to be kept up and how he can avoid being drawn into the vortex of the submerged and sweated. In spite, therefore, of nonsensical talk about trade unionism it is clear that, in the face of combination on every side, the great body of our profession must combine in self-defence against the various agencies bent on farming the doctors for their own profit."

Dr. J. Dixon Mann insists on the necessity of focussing that most potent abstraction—professional opinion—so as to maintain a high standard of medical ethics. Many men are compelled by economical forces to act against their own ethical conceptions, but he also observes that "others similarly placed are lacking in that innate impulse to deal honourably with their fellows and succumb to temptation and conduct their practices on lines more mercantile and competitive than ethical and professional. Nor are all offenders the victims of circumstances; some take a wrong course, not in consequence of their surroundings but from a total and callous disregard of professional obligations. It is to such as these that the second of the two chief functions of the Guild applies. The individual expression of opinion by a brother practitioner would probably be lightly esteemed by the offender; but when a body of men, representing the profession of the district, speaks its words carry weight and cannot well be neglected."

Mr. R. Hanson Wolstenholme, one of the most active and enthusiastic members of the Guild, points out that though the number of practitioners has increased the population has never been so numerous or the wealth of the country so well distributed and the demand for medical services so imperious, yet "the 'fourpenny physician,' the 'sixpenny doctor,' the 'penny a week club,' the 'medical aid association,' *et hoc genus omne*, together with the advertising terror who announces himself by means of handbills pushed under the doors of people's houses, constitute an opprobrium to the profession. These excrescences have developed along with the 'largest and most influential medical association in the world' and no persistent attempt has been made by it to remove them. To appoint an ethical section once or twice at its annual meetings during the course of 60 years is merely to toy with a question which will require continuous and united effort to solve."

Like their colleagues at Middleton the members of the Manchester Medical Guild have now signed a pledge undertaking not to accept any new club at less than 4*s*. per annum per member plus a 2*s*. 6*d*. examination fee for all new members. The term "new club" does not mean a recently created club but a club which is new to the medical officer. So that all medical officers who are actually serving for less than this cannot be replaced unless the 4*s*. are paid to the new comer. The pledge does not call upon club medical officers to resign or to attempt to raise their fees, but it gives them an absolute guarantee that if they do so no co-signatories will compete against them. Thus Mr. Wolstenholme informs me that a medical officer of a small club in Salford was dismissed three months ago because he attempted to raise the subscription paid by the members to the standard of 4*s*. During these three months the club has sought actively to secure the services of some other local practitioner but has utterly failed. The pledge has been signed by all the 53 practitioners in Salford, by the whole profession in Eccles and Levenshulme, by practically all the medical men in ordinary practice in Beswick, Harpurhey, Hightown, Gorton, and Openshaw. Each of the other districts of Manchester except Hulme is in need of an earnest, active local practitioner who will take upon himself the work of canvassing his colleagues and convoking them to meet. When this has been done all the clubs will be requested to raise their subscriptions to 4*s*. From this it will be seen that, though the number of medical men who according to the accounts have paid their 5*s*. annual subscription as members of the Manchester Medical Guild barely exceeds 200, the action of the Guild is supported by a much larger number of practitioners. Some 60 per cent. of the practitioners are formally enrolled and many of the consultants have also joined. The Manchester Medical Guild extends over a radius of four miles. The Medical Guilds of Wigan, Bolton, Ashton, Middleton, and Stockport are not affiliated, but some of their members also belong to the Manchester Medical Guild, and applications have been received from all parts of England for copies of the rules together with other information. Manchester and Salford are divided by the Guild into ten sub-districts. When a meeting is held in any one of these districts for the purpose of discussing questions interesting the profession generally the invitations sent out are not limited to the members of the Guild but all the local practitioners are invited to attend. Thus a great deal of outside support has been secured and the action of the Guild has been strengthened by the approval of those who have not yet been enrolled formally as members. Also a great benefit has resulted from the fact that now when a medical man has a grievance against any one of his colleagues he at once applies to the Guild for redress. The matter is then investigated and a sort of arbitration established. Thus personal disputes are avoided and the contending parties reconciled. In this manner a feeling of friendliness and harmony has been engendered between the members of the profession. A higher sense of dignity has been developed; the "shoppy" class is being gradually eliminated or is dying out and is being replaced by a more worthy and professional feeling. Even the "sixpenny doctors" have been induced to sign the pledge undertaking not to accept clubs at less than 4*s*., and there is a tendency even among the lowest sections of the profession to seek admission to the Guild.

This necessarily is but an imperfect and brief summary of the work achieved by the Manchester Medical Guild during the last five years. Nevertheless, it will serve to show how extensive and various is the work that has to be done. No one can read through all the items mentioned above without realising that it would be absolutely impossible for an individual practitioner to deal with them if he was unaided and alone. The necessity of union thus stands clearly revealed, and it will be seen that the practitioners in many of the numerous towns by which Manchester is surrounded have fully appreciated the object-lesson thus given, for they have also formed medical guilds. The movement is growing but it lacks uniformity and the time is approaching when these various local medical unions should be brought together so as to establish a common understanding.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

Plague and War and the Services.—A Sacrifice to Duty.—The Course of the Epidemic.—Inoculation in Bombay City.—Shipments of Plague Prophylactic Fluid.

IT has been an extraordinary feature of plague administration in India that civilians or military men should always have been placed in the highest positions of authority, while medical men have been practically left to carry out their regular executive duties. The anomaly seems all the greater

when it is remembered how much medical assistance has been temporarily imported into the country to perform subordinate work. The short-handedness of both the Indian Medical Service and the Royal Army Medical Corps has made this importation necessary, but it is difficult to understand why men from the latter branch, already too few in number, should have been called upon for service in this direction. The recall of officers in preparation for war will necessitate a rearrangement of plague officials, and it would be a gracious act on the part of the Government if they would recognise the services of some of the special plague officers from England by giving them more important duties and a higher rate of pay. At present the bar to their appointment to higher positions would appear to be the small hold which the Government have on their good conduct as compared with men in the "services," but if there were any disposition to recognise their work a guarantee in this direction could easily be demanded. The present time seems to be a particularly favourable one for the creation of a sanitary service in India, and a few appointments offered to suitable men would commence a branch of administration which is now absurdly small but which must in the very near future be somehow largely augmented.

I referred in my last letter to the death of one of the English plague sisters at Belgaum after five days' illness from pneumonic plague. She had not been inoculated. It appears that for some weeks she had been in ill-health and that the work at the civil hospital was very hard. It is said that there were 90 patients for two nurses to look after, but she continued duty notwithstanding her indisposition rather than throw extra work on her comrade. Her case is particularly unfortunate because she had nearly completed two years' service and she was about to proceed home to be married.

The outbreak of plague at Poona has been marked by the number of Europeans who have been attacked and I hear that several other cases have recently been recorded. As I predicted, there is a fall in the weekly number of deaths. The course of an outbreak in a large city is so regular that I can venture to say there will be a continued rapid fall for some weeks to come in the number of plague deaths, but a final slow decrease prior to the close of the outbreak. The deaths in Poona city have dropped from 1086 last week to 865 this week. For the whole of India there were 4357 deaths from plague, of which the Bombay Presidency contributed 4176.

Inoculation has never "caught on" in the city of Bombay and notwithstanding the advocacy of it by many influential men and the offer of it to the inhabitants free of cost only some 20,000 or 30,000 people have presented themselves during the past three years. Whether the offer of four annas to go through the operation is likely to induce the people to submit to it is very doubtful. At Hubli and Gadaz the people paid two annas for the privilege, but the essence of its popularity depended upon the freedom from the vexatious plague regulations of segregation and isolation. If the Bombay authorities had offered these privileges at the right time inoculation would probably have been popular there too; but the time has gone by, there are few or no privileges of this kind now to offer, and the inducements to be operated on are hardly worth a few coppers. The native does not recognise the value of the process; he only thinks how much interference he can be saved.

Last week the mail steamer took with it 25,000 doses of prophylactic plague fluid for the Local Government Board, London, being half of an order for 50,000 doses received by the Imperial Research Laboratory. The Russian Government have asked for and received 500 doses for use at Port Arthur, and further consignments are being got ready for the Cape, Mauritius, and Natal. The staff of the laboratory have their hands more than full at present.

The latest plague return from Hyderabad (Sind) is not satisfactory. Notwithstanding all efforts many deaths are occurring daily still and the town looks like a city of the dead. Efforts are being made to popularise inoculation, but the native divisional officers do not seem willing to undergo the operation.

Sept. 14th.

TYPHOID FEVER IN SOUTH WALES.—Typhoid fever has broken out in the Garw and Ogmore Valleys, the parts mostly affected being Nantymoel, Blaengarw, and Pontycymmer. About 40 cases have occurred at Bridgend.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Opening of the Medical Session.

THE October session in the department of medicine at Owens College was inaugurated with great *éclat* by an address from Sir James Crichton-Browne dealing largely with the bent towards materialism which perhaps is one of the most dangerous pitfalls led up to by a section of modern philosophers. He spoke strongly also of the insanitary conditions still in our midst, of "those indefatigable promoters of disease and degradation, overcrowding, over-pressure, over-drinking, under-feeding, under-thinking," to which he might have added over-feeding.

The Corporation Baths.

For some years past the members of the Manchester Corporation Baths Committee have done much to encourage cleanliness among the poorer citizens and to teach swimming to the young. School-children above seven years of age have free admission to the second-class swimming baths on any day but Saturday if they are accompanied by a teacher, and towels are provided at the expense of the corporation. If without a teacher or responsible person children must pay 1*d.* for the first-class swimming baths and ½*d.* for the second. The committee also pay teachers to attend the second-class baths to give instruction in swimming. These incentives to cleanliness have been freely utilised. The returns show that, including both paying and non-paying bathers in 1898, 152,527 scholars attended the baths, while this year, ending Sept. 7th, the number rose to 284,585, an increase of 132,058. If taken alone the non-paying bathers are seen to have increased in still larger proportion, for while in 1898 their number was 8068 it has risen this year to 115,278. The result of this new branch of education—for such it is recognised by the Education Department at Whitehall, and surely that may be deemed education which teaches the beauty of cleanliness—suggests perhaps the first idea of self-respect that the city arab has ever felt, gives him the power of helping to save life, for most of the bathers receive instruction in the art of life-saving in the water, and tends to produce manliness and sound health. It is said that the baths are more popular than the school lessons, and perhaps they may prove quite as valuable to the majority. The grown-up population may also be clean at a cheap rate, for "a luxurious bath," with soap, towels, and other requisites, may be had for a penny. The total bath receipts increased from £6570 in 1898 to £7255 in 1899 and the penny bathers were nearly 144,000. The Baths Committee paid their annual visit to the southern section of the baths on Sept. 20th and some interesting points were noted. At the Mayfield baths the laundry arrangements were inspected by which towels and other articles can be washed and disinfected, ironed, and dried at the rate of 400 every 20 minutes. After their tour of inspection the committee returned to the town hall, where the chairman, Alderman Bax, spoke of "the marvellous increase in the numbers of bathers and the progress the committee had been able to make. ..... They had done what they could to encourage the swimming clubs, and squads of soldiers from the infantry barracks were regular bathers early in the morning. The engagement of swimming instructors had been a great success and had been highly approved of by the school board." The total valuation of the baths is £137,208 and the total cost to the ratepayers was 1¾*d.* in the pound. The committee contemplate building more baths in districts not at present well supplied. These public baths are an enormous benefit to the poorer sections of the inhabitants, but it must be remembered that Manchester is better supplied with baths, even in houses of small rental, than most places, so that though Manchester is credited with being a wetter place than she really is, her inhabitants make good use of the water when it has fallen to the earth.

Hospital Accommodation for Small-pox.

The Sanitary Committee reported on Oct. 4th, at the meeting of the Manchester City Council on "the desirability of providing improved and separate hospital accommodation for the treatment of small-pox," a question which has often been before the committee. In 1895 the medical officer of health recommended a site on the Carrington Moss estate

belonging to the corporation as being the most suitable and the most isolated of all the suggested sites. Sketch plans were prepared, and in December, 1898, the chairman of the committee, accompanied by the medical officer of health, the deputy town clerk, and the city surveyor, had an interview with the officials of the Local Government Board, who approved generally of the site and the arrangements contemplated, including the proposed mode of conveying patients to the hospital, &c. Further plans have been approved by the committee, and also an estimate of £60,000 for the necessary work. The committee now recommend "the council to approve this report" and also an application to the Local Government Board to borrow the sum of £60,000. There was at one time a strong feeling in the neighbourhood against the placing of the small-pox hospital at Carrington Moss, and perhaps it may not have wholly died away even yet, but local opposition must always be looked for. As a matter of fact, it is as isolated a site as can be obtained in the neighbourhood of Manchester and sufficiently remote from dwellings for safety. The conveyance of patients from a large town to the outskirts necessarily involves passing through streets and roads, and objection to this means logically that they must not be removed at all to any isolation hospital, but must remain—centres of infection—in their homes. The arrangements for transport will guard against any possibility of spreading the disease during transit.

The Ship Canal and Diphtheria.

The Health Committee of the Eccles Corporation state that the Ship Canal was very offensive during August, which no one will dispute, and in some instances caused sickness and diarrhœa. It is easy to lay the blame on the Ship Canal and to ignore all the other possible factors in the case and it is worth while to look at some of the facts. The houses affected in the Eccles and Irwell wards are not those nearest to the canal. There are no cases in the Patricroft and Barton wards, as near to the canal as the others, nor are there any in Salford. In nearly every case notified the condition of the house and surroundings was insanitary. It is true that most of the cases were in streets which have dead-ended sewers, but in the highest and farthest part of the sewerage system, where the sewers are dead-ended, there have been no cases of diphtheria. The report is not explicit as to whether there was any diphtheria among the cases of sickness and diarrhœa. It states that four Eccles schools were closed for three weeks in consequence of the epidemic. But it was not the Ship Canal alone that was a nuisance, for complaints were made to the committee from the residents in a wide area of "the pollution of Folly Brook and its tributaries," and this petition was passed on to the Swinton and Pendlebury Urban District Council and the Bridgewater Trustees "for their observation." The truth is that all are sinners alike. There is very little coöperation and wholehearted endeavour to get rid of, and to destroy, pollution and filth. The great nuisances are made up of many lesser ones. If each household were careful to destroy, preferably by fire, all its vegetable and animal domestic waste, an immense benefit would at once ensue. But it is not done, and all goes to swell the amount of refuse to be dealt with publicly. The sewers and the streams, now almost universally degraded into sewers, pass on to neighbours lower down all they can be made to carry, and so it goes on until the accumulated pollution reaches some great receptacle such as the Ship Canal, while all, from individuals to bodies more or less corporate, plume themselves on their "admirable sanitary arrangements." Much more of example and precept will be needed before individuals and communities see the wisdom of checking the first beginnings of evil.

Strange Death at Oldham.

An inquest was held on Sept. 28th at Oldham by Dr. Thomson, the borough coroner, on the body of a girl, aged 19 years, who was found dead, tied to a form in a washhouse connected with a public-house. "The coroner said the deceased's father found her arms, chest, and body tied by a rope secured to a form in the washhouse. She was left alone for hours. When found she was quite dead." This was borne out by the evidence. The landlord admitted tying the girl to the form, "but he did it to save her from injuring herself while she was in a hysterical fit." Dr. Hodgson said death was due to fainting. In summing up the evidence, which "was not quite satisfactory," the coroner said that the jury must ask themselves if the landlord did right, when he found that the girl was suffering from unusual attacks, in dealing with her himself instead of obtaining skilled advice? Was it right to leave her alone and bound down for a long period, and was his treatment of her "such as could be tolerated"? The jury returned a verdict of manslaughter, at which the landlord "appeared greatly shocked." He was committed for trial, but was admitted to bail.

Oct. 5th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Edinburgh University.

FRIENDS of Sir Thomas Grainger Stewart will hear with regret that the state of his health has rendered it necessary that he should be relieved of his professorial duties this winter. The Senatus of the Edinburgh University has appointed Dr. John Wyllie to deliver the systematic course of lectures on medicine and Dr. Alexander Bruce to take charge of the clinical work in connexion with Sir Thomas Grainger Stewart's wards in the Royal Infirmary.

Edinburgh Royal Infirmary.

During the last six months there have been paid to the Edinburgh Royal Infirmary legacies amounting to over £35,000 and donations amounting to over £2300.

Fever Hospital for Dornoch.

It has been decided to erect a small fever hospital for the burgh of Dornoch. A committee has been appointed to choose a site and some donations and subscriptions have already been promised.

Outbreak of Typhoid Fever at Burntisland.

About three weeks ago an epidemic of typhoid fever broke out in Burntisland the source of which has been traced to the milk-supply from a dairy at Grange Farm and was due to pollution of the water from Grange Quarry. There were about 60 cases of the disease and of these seven proved fatal. The epidemic has apparently expended itself, as according to the report of the medical officer of health of Sept. 30th no fresh cases have been announced since Sept. 21st.

Outbreak of Typhoid Fever at Dalkeith.

A number of cases of typhoid fever have been reported within the burgh of Dalkeith. Notices have been issued to the inhabitants urging them to boil milk and water before using them, and the Dalkeith Commissioners have given orders for the analysis of the milk and water used in the town.

Oct. 4th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Typhoid Fever in Dublin.

NUMBERS of letters and many leading articles have recently appeared in the daily journals on the subject of the abnormally high death-rate which has recently prevailed here and on the epidemic of typhoid fever. It is satisfactory to note that the extraordinary mortality of 41, and even 42, per 1000 which was registered in recent weeks has now disappeared. The death-rate for the week ending Sept. 30th was announced on Oct. 3rd as 33 per 1000, as compared with the mean rate for the last ten years, which is 27·3. Very violent attacks have been made on Sir Charles Cameron and the Public Health Committee. If it be true, however, as stated by Alderman Farrell in a recent letter which appeared in the papers, that the Public Health Committee of 16 includes many members who are owners of tenement houses in the city, and if, moreover, it be a matter of fact that half those gentlemen—that is, eight of them—are directly interested in the "licensed trade," it will be seen that our chief public officer of health has a difficult part to play. As I mentioned

last week Dr. Charles Moore recently addressed an able letter to the *Irish Times* directing attention to many measures not involving much expense which should be attended to without delay—the removal of dairies from the dirtiest portions of the city, the closure of small slaughter-houses, &c. It is not the first time that Dr. Moore has written on these subjects, but nothing seems as yet to have been done further than the periodic inspection of such places by the officers of the Public Health Committee. It is generally stated and believed that the present epidemic of typhoid fever—of which 100 cases were notified during the week ending Sept. 30th—is traceable to infected milk from certain dairies.

Commencement of the Medical Session.

At all the medical schools and clinical hospitals of Dublin lectures were commenced on Oct. 2nd. The inaugural addresses at those hospitals where such are customary began at St. Vincent's Hospital on Oct. 3rd, when Mr. Tobin spoke to a large audience of students and visitors. Dr. John William Moore, the President of the Royal College of Physicians of Ireland, will formally open the session at the Meath Hospital on Oct. 9th.

Officers of County Infirmaries in Ireland.

The Local Government Board have recently announced that they are advised that no paid officer of the infirmaries can be a member of the governing body thereof.

Medical Dispensary Officers and their Holidays.

A memorial has been sent from the Belfast Board of Guardians to the Local Government Board asking for a revision of their decision allowing dispensary medical officers four weeks' holiday, their substitute to be paid by the guardians. In the memorial special stress is laid on the fact that "not exceeding twenty-eight days" means that the local authority have a discretionary power to grant a shorter period.

The New Hospital for Co. Tyrone.

The Duchess of Abercorn is to open the new hospital in Omagh on Nov. 13th. It is hoped that there will be sufficient money to allow the hospital to be lighted with electricity and that it shall be begun free from debt.

Belfast Medical School.

The winter session will begin on Oct. 17th both at Queen's College and at the Royal Hospital. Dr. Calwell has been elected medical registrar in place of Dr. McKisack.

The Belfast Union Infirmary.

At the usual weekly meeting of the Belfast Guardians on Oct. 3rd the following were elected visiting medical officers: Dr. James Lynass and Dr. John McLlesh. Both of these gentlemen have been former resident medical officers in the Union Workhouse.

Oct. 4th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Academy of Medicine.

THE Academy of Medicine recommenced its sittings on Sept. 19th, the President being Professor Panas. Although many medical men are still away there was a very fair attendance at the first sitting. In the lobbies the chief subject of discussion was the new Academy buildings in the Rue Bonaparte. The works are being pushed forward with great rapidity and it is hoped that the new buildings will be ready for opening next year during the Exhibition. Among the papers read at the first sitting was a communication from Dr. Moncorvo of Rio de Janeiro, a corresponding member of the Academy. It dealt with a new method of differential diagnosis between disseminated tuberculosis (*granulie*) and commencing intermittent fever in children. The method consists in smearing (*badigeonnages*) the skin with guaiacol, which procedure causes a rapid fall in temperature if the fever be due to tuberculosis, but has no such effect in cases of malaria.

The New Sanatorium at Hendaye.

A new sanatorium has just been opened at Hendaye for poor and puny infants of the city of Paris, and M. Lucipia, the President of the Municipal Council, has recently paid his official visit. This sanatorium, together with those at Berck-sur-Mer and Angicourt, makes the third of the kind erected by the city of Paris. The construction leaves nothing to be desired so far as attention to modern principles of hygiene goes. It is situated a little over two miles from Hendaye at the mouth of the Bidassoa in a sheltered bay and consists of eight isolated blocks, four for girls and four for boys. Some of the buildings are fitted as studies for the children and have large playgrounds looking over the sea. There is also an observation block for new arrivals with 26 beds and an infirmary with 17 beds. Altogether there is room for 200 children. The Municipal Council has apparently decided to build many other similar establishments, but unfortunately the work cannot be pushed on as fast as the buildings could be taken into use on account of the expense of the buildings and the relatively small number of children that they can contain. So already numerous other more economical projects are in the air. Dr. Dufournier, one of the physicians attached to the Bureaux de Bienfaisance of Paris, thinks that tuberculous children should be boarded out in cottage homes in the country in the same way that imbecile children are treated. Of course it goes without saying that strict medical supervision would be required and every hygienic precaution taken so that the children should not be centres of infection for their hosts. On the other hand, M. Blondel, a member of the Municipal Council, proposed some time ago that the city of Paris should make use of landed property situated in the country, which it could obtain at the lowest possible rates, as sites for colonies of weakly, anæmic children who were prone to become tuberculous, and should place them under the care of members of its own staff who were in need of rest. This method would be a much less costly one for the city than the building of palatial sanatoria and the children could be restored to health without interruption to their studies. On the principle that example is better than precept M. Blondel has just handed over to the city of Paris a property belonging to his family near Nogent-le-Rotrou. It consists of six hectares of garden and meadow land with various farm buildings which can easily be made into dormitories, dining-rooms, and class-rooms. It has been suggested to build other colonies of this kind in Tunisia, and Professor Landouzy, who is the moving spirit in France in favour of sanatoria, has had several communications on the subject with M. Millet, the French Resident-General at Tunis. Such sanatoria for elder children would be at once training schools and centres of colonisation. Unfortunately the cost of moving the children and the absolute separation from their families which this plan would necessitate put serious obstacles in the way of this method being adopted. As far as the sanatoria in France are concerned the railway companies make substantial reductions in the fares for the children and their parents when the latter make a visit to the former.

Return of the Pasteur Institute Plague Commission.

The commission, the members of which were Dr. Calmette and Dr. Salembeni, sent out by the Pasteur Institute to study and fight against the plague in Oporto returned to Paris on Oct. 2nd. The members of the Pasteur Institute *fêted* Dr. Calmette who has returned delighted with the result of the commission—such being, in fact, a complete triumph for the anti-plague serum. The International Commission appointed to examine the question had come to the unanimous conclusion that Yersin's serum was worthy to be extolled as a preparation of value. No doubt exists of its efficacy as a preventive and after the first few days' excitement and rioting, during which Dr. Salembeni was injured by being hit on the knee with a stone, the inhabitants of Oporto finally recognised the benefits of the inoculation and during the last three days Dr. Calmette inoculated 423 workmen, firemen who carried dead bodies, and small shopkeepers. The members of the commission in the first place inoculated themselves. The efficacy was, however, less in cases with decided symptoms. Dr. Calmette was successful even in serious cases by injecting the serum directly into the veins. Dr. Calmette thinks that the Portuguese might easily free themselves from plague if they would rigorously carry out the

measures which have been recommended to them and in particular if they would carry out inoculation of all the inhabitants of the suspected quarters. The immunity conferred by the inoculation lasts 25 days at least, the advantage of such immunity being capable of indefinite renewal by re-inoculation. Unfortunately the inhabitants of Oporto carefully conceal all cases of contagion. Dr. Calmette quotes a case in which the body of a person dead from plague was concealed in his house for three weeks. The only patients brought to the hospital were those who had no family to keep them in hiding; the greater part were admitted in a hopeless state. Dr. Calmette frankly expresses the opinion that it is impossible for the plague to establish itself in France and to develop there even in the improbable event of its importation by cases in the stage of incubation.

Oct. 4th.

ROME.

(FROM OUR OWN CORRESPONDENT.)

A Statesman on Hygiene.

"SANITAS sanitatum, omnia sanitas," said Mr. Disraeli on the eve of that General Election in 1874 which returned him to power with a sweeping majority. "Sanitas sanitatum, omnia sanitas," said his Italian counterpart, Francesco Crispi, when, in 1888, he carried his "Legge per la tutela dell' igiene e della sanità pubblica." Herein he showed himself a true statesman—a truer statesman, many will be disposed to say, than when he helped to organise the Triple Alliance and developed that policy of colonial expansion which has not hitherto been favoured by fortune. At the recent Congress of Hygiene held at Como Professor Bizzozzero of Turin passed in review the sanitary administration of Italy prior to the Crispian epoch, dwelling particularly on the law of 1868 which fused down into one system the enactments hitherto in force throughout the several States of the kingdom. That fusion was indispensable as a preliminary, but it had the grave defect of leaving the safeguard of the public health almost exclusively in the hands of the political and administrative authorities, so that the initiative was withheld from the only body capable of taking and directing it aright—to wit, the medical. No regulation suggested by clinical experience or scientific induction got a fair hearing; disease, zymotic in origin and epidemic in sway, had free course; action, defensive or precautionary, was inspired by fear; perfunctory quarantine and sanitary cordons, while almost inviting the enemy, wrought serious mischief to the country's commercial and economic interests. All this Signor Crispi saw—saw, moreover, through eyes still keener than his own, those of his friend and fellow patriot Agostino Bertani, who having sacrificed to the revolution one of the finest surgical intellects known to the nineteenth century passed from his Genoese clinique to Garibaldi's several expeditions as director-in-chief of their medico-chirurgical department. The unity of Italy achieved, Bertani lost no time in proclaiming his special contribution to the country's regeneration, a contribution embodied in the memorable words: "In no other way can Governments more effectively safeguard the less favoured classes than by protecting them from the manifold assailants of their health, physical and mental." With such a counsellor at his elbow Crispi set about his great measure of sanitary reform, and by December, 1888, he had completed it, carried it through Parliament, and made it law. And very thorough the "Codice Sanitario" was—the joint work of the Genoese surgeon and the Palermitan jurist. Beginning with the "risanamento" of the soil and the dwelling-houses erected on it, its next provisions included the supply of "acqua potabile" and of unadulterated food. Thereafter was created a school for training the *personnel* capable of carrying out its manifold regulations, with laboratories for hygienic analysis and research and for the preparation of vaccine and serum in all their varieties, preventive and curative; while apparatus or methods found to be useless were replaced by others really effective, until the establishment of sanitary stations, inland and maritime, vouchsafed the people a rational protection and with it the confidence which it brings, protection against epidemics, against epizootic disease, against imported maladies generally—all this, moreover, without prejudice to commerce or inconvenience to the travelling world. Tested by results, Professor Bizzozzero had no difficulty in showing the salutary working of the Bertani-Crispi law. In 1888 mortality in Italy oscillated between 28 per 1000 and 34 per 1000. Now it has sunk, by successive, almost annual, gradations to 22 per 1000, "with an economy of vital energy, an appreciable diminution of maladies, and with signal advantage to the tranquillity, the decorum, and the material prosperity of the nation." True, the besetting evil of Italian political life (its frequent changes of Ministries, and the consequent "solution of continuity" in administration) has hampered, even hindered, the working of the "Codice Sanitario"; but, on the whole, it bids fair to have a future worthy of its origin and its inception and, as shown by such test-cities as that great *entrepôt* of travel, Milan,[1] justifies its *raison d'être* even before the outside world. I have been led into these observations by the interesting ceremony to be solemnised in Palermo on Oct. 4th—the celebration of the eightieth birthday of Francesco Crispi. Nor am I alone in singling out for special commendation in his life-work the great sanitary reform which he effected in concert with Bertani. Not only do Professor Bizzozzero and the Congress just held at Como indicate that reform as the crowning achievement of his career, but nearly all the lay press of Italy join in the chorus of acclamation.

Oct. 2nd.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

The Relative Cost of Free and Paying Patients.

IT appears that during the last fiscal year the number of pay patients in the Massachusetts General Hospital was 1778; the number making partial payment was 175; and those receiving free service was 2854. Those of the first class received 5322 weeks' service and those of the last class 7897 weeks. The value of the work received by the free patients of the hospital amounted to $103,734.64, while the income from the pay patients was $66,774.19. Examination of the returns of the McLean Hospital at Waverly, Mass., for the same year show that pay patients brought to that hospital $186,769.92; the number treated was 155 and the cost per week per capita was $26.84. Payments from those paying in part amounted to $167,723.16, the total amount from these patients being $93,735; hence the charity dispensed by the institution was valued at $73,988.16 out of a total expenditure of $218,673.60.

Railway Accidents in the United States.

The statistician of the Inter-State Commerce Commission states, in the "Statistics of Railways in the United States," that more persons were killed or injured by railway accidents during the year 1898 than in any year since 1893. But it is an interesting fact that the remark does not apply to passengers. The increase was confined to employés and is believed to be due to the necessity of employing an unusual number of inexperienced persons on account of the great increase of traffic.

The Quarantine at New York.

The allegation that the outbreak of yellow fever at Hampton, Virginia, was caused by a case which passed the New York quarantine has induced the health officer of this port to explain fully his method of proceeding. He says: "Since May 1st every person arriving at this station on vessels from Cuban ports has been held at quarantine for a period of five days from the time of embarkation unless he or she presents an immune certificate issued by a representative of the Marine Hospital Service at the point of departure. Not one exception has been made. If the passengers arrive on a United States transport the vessel is detained in quarantine with the passengers aboard, under the constant supervision of a member of the medical corps of the United States Army. At the expiration of five days from the time of embarkation, and after a report from the surgeon in charge that all are well, the passengers are brought to the deck and personally examined before the vessel is released.

[1] The Health of Milan, THE LANCET, Sept. 30th, 1899, p. 902.

In the case of merchant vessels all passengers who do not hold immune certificates are removed to Hoffman Island and detained there under the observation of the officers of the department until the completion of the above period and then only released after a careful inspection. It is believed that five days is the maximum period of incubation of yellow fever. The disease usually appears on the second or third day. The statement occasionally made that the period of incubation of yellow fever extends beyond five days is not accepted by those who are familiar with the disease. Therefore, if a careful inspection at the end of five days after leaving an infected area discloses no evidence of yellow fever it may be accepted that the person examined is not a menace to the public health. A rule embodying this principle is rigidly enforced by this department. The clothes and effects of those leaving Santiago are disinfected before embarkation and this is the only safe and practicable way; otherwise, presumably infected material may be taken on board the vessel."

The Phenomenon of Pain.

Dr. Macdonald of the United States Bureau of Education has published the results of experiments in measuring pain by means of a peculiar instrument invented by him and called a "temple algometer." He finds that the sensibility to pain decreases as age increases; the left temple is more sensitive than the right and in that respect accords with former experiments that the left hand is more sensitive to pain than the right hand. There is reported an increase of obtuseness to pain from ages 10 to 11 years, then a decrease from 11 to 12 years, then an increase from 12 to 13 years; from 13 to 17 years, while the right temple increases in obtuseness to pain, the left temple increases in acuteness. Again, girls in private schools, who are usually of wealthy parents, are much more sensitive to pain than girls in public schools, so that the hardihood which the great majority must experience seems advantageous. University women are more sensitive than washerwomen, but less so than business women; there seems to be no necessary relation between intellectual development and sensitiveness to pain; and obtuseness to it seems to be due more to hardihood in early life. To summarise, acuteness to pain is greatest with girls of the wealthy classes, then with self-educated women, then with business women, then with university women, and lastly with washerwomen.

Prize Essay on the Tropical Army Ration.

A new question has arisen in army and navy medical circles. The recent war has compelled the service of American soldiers and sailors for the first time in tropical climates and there is much difference of opinion in regard to the kind of ration best adapted to that latitude. To determine the question Dr. Louis L. Seaman, late major-surgeon of the First Regiment United States Volunteer Engineers, has offered a prize of $100 in gold, or a medal of that value, as the successful competitor may select, for the best thesis on this subject—viz., "The Ideal Ration for an Army in the Tropics." The competition is open to all commissioned medical officers of the army and navy, regular and volunteer. The prize is offered through the "Military Service Institution of the United States." The executive council of that body has decided that all papers on this subject should be submitted by March 1st, 1900, and that Colonel Weston, acting commissary-general, Lieutenant-Colonel Charles Smart, deputy surgeon-general, and Lieutenant-Colonel William E. Dougherty, Seventh United States Infantry, be requested to act as the board of award.

A Corps of Female Army Nurses.

The Government has decided to form an army nurse corps, to be under the supervision of the surgeon-general, and orders have been issued to that effect; the direct supervisor of this branch of the army will be Dr. Anita Magee. This organisation will be composed of chief nurses, nurses, and reserve nurses. Cases in army hospitals requiring the service of trained nurses will be supplied by the surgeon-general with female nurses. Upon entering nurses will contract for one year's service, except immune nurses, who will not be bound to any period; the recompense will be $40 per month in the United States and in the colonies $50. Chief nurses in charge of from five to ten nurses will be paid $10 extra, those in charge of ten or more nurses $25 additional, and in case of the illness of a nurse medical care and attention will be supplied, but extra leave with pay will not be furnished.

Sept. 18th.

Medical News.

CIVIL PRACTITIONERS FOR MEDICAL SERVICE.—The War Office is advertising for civilian medical practitioners to fill up the vacancies in the United Kingdom caused by the departure of so many officers of the Royal Army Medical Corps to South Africa. The appointments are for six months, the salary offered being £270 per annum. Candidates must be under 40 years of age and are to apply to the Director-General, Army Medical Department, 18, Victoria-street, S.W.

UNIVERSITY OF DURHAM.—At the Convocation held on Sept. 23rd the following degrees were conferred:—

Doctor in Medicine.—John Charles Anderson, M.B. Durh.; Arthur James Dale, M.B., B.S. Durh.; Joseph Livingstone Frazer-Hurst, B.A., M.B., B.S. Durh.; Ralph Norman Lishman, M.B., B.S. Durh.; Theodor Lund, M.B., B.S. Durh. (*in absentid*); Norman McCall-Smith, M.B., B.S. Durh.; William Longstaff Wight Walker, M.B., B.S. Durh.; and William Henry Whitehouse, M.B., B.S. Durh.

Doctor in Medicine (Practitioners of Fifteen Years' Standing).—Oswald Baker, L.R.C.P. & S. Edin.; Ralph Henry Browne, M.R.C.S. Eng., L.R.C.P. Lond.; William Gilbert Dickinson, M.R.C.S. Eng., L.R.C.P. Lond., D.P.H.; Dennis Cawood Embleton, M.R.C.S. Eng., L.R.C.P. Lond.; Syed Hassan, M.R.C.S. Eng., L.R.C.P. Lond., D.P.H.; Henry Nelson Holberton, M.R.C.S. Eng., L.R.C.P. Lond., D.P.H.; Joseph Stenson Hooker, L.R.C.P. & S. Edin., L.S.A.; John Charles Radclyffe Husband, M.R.C.S. Eng. L.R.C.P. Edin.; Henry Knowles, L.R.C.P. Lond., L.R.C.S. Edin., Henry Richard Leech, L.R.C.P. & S. Edin., L.S.A.; Gordon Bonnington Willie Messum, M.R.C.S. Eng., L.R.C.P. Lond.; George Sinclair, L.R.C.P. & S. Edin.; Thomas Hanson Smith, L.R.C.P. & S. Edin.; Henry George Sworn, M.R.C.S. Eng., L.R.C.P. Irel.; John Arthur Webster, M.R.C.S. Eng., L.S.A.; and Neville Thorold Wood, M.R.C.P. Lond., M.R.C.S. Eng.

Bachelor in Medicine.—Norman Christian Bailes and Laurence James Blandford, College of Medicine, Newcastle-upon-Tyne; Mark Francis Cahill, L.R.C.P. & S. Irel., Royal College of Surgeons, Ireland; Solomon Cross and Harold Ben Fawcus, College of Medicine, Newcastle-upon-Tyne; Richard Denington Fisher, M.R.C.S. Eng., L.R.C.P. Lond., London Hospital; Edward Gofton, College of Medicine, Newcastle-upon-Tyne; Robert Bond Greaves, L.S.A., University College, Sheffield; John Rutherford Halliday and William John Harrison, College of Medicine, Newcastle-upon-Tyne; William Curling Hayward, M.R.C.S. Eng., L.R.C.P. Lond., Charing-cross Hospital; John Tyrer Johnson and Henry Herbert Markham, College of Medicine, Newcastle-upon-Tyne; Richard Oswald Mather, L.R.C.P. & S. Edin., University College, Liverpool; James Muirhead, College of Medicine, Newcastle-upon-Tyne; Edward Frederick Pratt, L.R.C.P. Lond., Mason College, Birmingham; Morgan Richards, L.S.A., London Hospital; and Norcliffe Roberts, Robert Lowis Routledge, Edward Norman Threlfall, Carl Wahlgren von Bergen, and David Henderson Weir, College of Medicine, Newcastle-upon-Tyne.

Bachelor in Surgery.—Norman Christian Bailes, Laurence James Blandford, Solomon Cross, and Harold Ben Fawcus, College of Medicine, Newcastle-upon-Tyne; Richard Denington Fisher, M.R.C.S. Eng., L.R.C.P. Lond., London Hospital; Leopold Fothergill, M.B. Durh., and Edward Gofton, College of Medicine, Newcastle-upon-Tyne; Robert Bond Greaves, L.S.A., University College, Sheffield; William John Harrison, College of Medicine, Newcastle-upon-Tyne; William Curling Hayward, M.R.C.S. Eng., L.R.C.P. Lond., Charing-cross Hospital; John Tyrer Johnson, Henry Herbert Markham, and James Muirhead, College of Medicine, Newcastle-upon-Tyne; Edward Frederick Pratt, L.R.C.P. Lond., Mason College, Birmingham; Morgan Richards, L.S.A., London Hospital; and Norcliffe Roberts, Robert Lowis Routledge, Edward Norman Threlfall, Carl Wahlgren von Bergen, and David Henderson Weir, College of Medicine, Newcastle-upon-Tyne.

LITERARY INTELLIGENCE.—Mr. A. E. Maylard, the author of the well-known treatise on the "Surgery of the Alimentary Canal," is preparing for immediate publication a student's handbook on the same subject. The book will be brought out at a price within the reach of the student.—Since the issue of Mr. Butlin's work on the "Operative Surgery of Malignant Disease" great strides in this department of surgery have been made. This has necessitated a second edition in which Mr. Butlin has been assisted by various experts in the compilation of some of the chapters. Both books will be issued by Messrs. J. & A. Churchill.—Messrs. Longmans, Green, and Co. announce the publication of a treatise for students and practitioners on Surgery by Mr. Thomas Pickering Pick. The work contains 440 illustrations and comprises the substance of the author's lectures on surgery delivered at the St. George's Hospital during a period of 15 years.—Messrs. Archibald Constable and Co. will

commence the publication this month of one of the largest works on Physical Geography ever attempted. For many years Mr. J. G. Bartholomew, F.R.G.S., has been engaged in compiling, with the assistance of men of science in all parts of the world, a Physical Atlas which is to contain all the results of the latest research in the various fields of knowledge embraced in it. This Atlas will consist of seven volumes, dealing respectively with Geology, Orography, Hydrography and Oceanography, Meteorology, Botany, Zoology, Ethnography and Demography, General Cosmography, and Terrestrial Magnetism. Her Majesty the Queen has accepted the dedication and the series is issued under the immediate patronage of the Royal Geographical Society. Messrs. Archibald Constable and Co. are publishing the work by subscription at two and a half guineas net per volume, but Fellows of the Royal and other learned societies will have the privilege of securing the Atlas at two guineas net per volume by subscribing before Oct. 18th.—*Climate*, a quarterly journal of health and travel, edited by Dr. C. F. Harford-Battersby, is announced for issue on Oct. 10th, under the auspices of the council of Livingstone College. The object of the new journal is to afford an opportunity for an interchange of opinions on health questions by those who have had experience in various parts of the world. In connexion with Livingstone College an exhibition of articles which may help towards the promotion of health and comfort of missionaries and travellers is to be held at St. Martin's Town Hall, London, from Jan. 1st to 5th next year.

WE regret to hear that Mr. George Scudamore, the secretary to the Samaritan Free Hospital and to the Marylebone Female Protection Society, has been compelled to resign both appointments in consequence of prolonged ill-health.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL.—The University Scholarship (£50) has been awarded to Mr. Arthur Cyril Hudson, B.A., of Trinity College, Cambridge. The Natural Science Scholarship (£150) has been awarded to Mr. Lacey Bathhurst. The Natural Science Scholarship (£60) has been awarded to Mr. Leonard Craske. Mr. E. H. Bennett Bailey and Mr. F. A. Broadribb obtained marks qualifying for a scholarship.

CHARING-CROSS HOSPITAL MEDICAL SCHOOL.—The following entrance scholarships have been awarded: Livingstone Scholarship (100 guineas) to Mr. Philip Rees; Huxley Scholarship (55 guineas) to Mr. R. Huxtable; and Universities Scholarships (each 60 guineas) to Mr. A. C. Taylor and Mr. H. F. Skrimshire. Entrance scholarships have also been awarded to Mr. L. Maitland (60 guineas), Mr. Harold Smith (40 guineas), and Mr. H. W. Farebrother (30 guineas).

PRESENTATIONS TO MEDICAL MEN.—On the occasion of his retirement from the visiting staff of the Glasgow Royal Infirmary a presentation was made on Sept. 30th to Dr. Alexander Robertson, senior physician, Glasgow Royal Infirmary, and Professor of Medicine, St. Mungo's College, Glasgow. The presentation took the form of a silver salver with inscription. It was subscribed for by Dr. Robertson's assistants (both of the infirmary and of the Glasgow Town's Hospital), his residents, and his nurses past and present. Dr. John Ritchie formally presented the gift in the presence of a representative gathering of medical men and nurses.—At the annual meeting of the Fifeshire Medical Association held on Sept. 29th in the George Hotel, Kirkcaldy, Dr. Laing, of Kirkcaldy, presiding, Mr. James Morris, F.F.P.S. Glasg., of Dunfermline, was the recipient of a dining-room clock on completion of 50 years' faithful service in the profession. Dr. Laing, who made the presentation, remarked that this was the first occasion on which the association had met to celebrate the jubilee of one of its members. It was the lot of few medical men to practise for 50 years in the same town. They hoped that Mr. Morris would long be spared to go out and in among his patients.—A correspondent at Madura (S. India) writes: "The Rev. F. Van Allen, M.D., after 11 years of medical work in the American Mission here, has left for a well-earned furlough in America. His charges expressed their appreciation of his service by a hearty send-off, presenting him with an address enclosed in a silver casket, a purse of 50 sovereigns, and a large collection of Indian curios."—Mr. David Traill, M.B., B.Sc. Edin., on the occasion of his leaving New Pitsligo, Aberdeenshire, was presented on Sept. 18th, in the Public Hall, with a testimonial by the subscribers as a token of the respect in which he and Mrs. Traill are held in the district. The testimonial consisted of a gold watch with suitable inscription and a purse of 40 sovereigns. At the same time Mrs. Traill was the recipient of a gold brooch. Subsequently on the same day the brethren of the St. Andrew Lodge, No. 518, gave a complimentary supper to Dr. Traill on his leaving office as W.M. of the lodge and presented him with a Past Master's jewel in gold.

HOSPITAL SATURDAY.—£262 have been collected at Ilfracombe for the Hospital Saturday Fund, being about £30 more than in any previous year.

A CENTENARIAN.—Thomas Philpin died at the Haverfordwest Workhouse on Sept. 28th in his 102nd year. He was born at Haroldstone, near Haverfordwest, on Jan. 2nd, 1798.

WATER-SUPPLY OF BUDE.—A Local Government inquiry was held at Stratton on Sept. 27th into an application from the Stratton Rural District Council for sanction to borrow £9500 for works of water-supply for Bude and Stratton.

AN OLD PRACTITIONER.—On Sept. 25th the Newport (Mon.) borough magistrates passed a vote of congratulation to Mr. William Williams Morgan, M.D. St. And., M.R.C.S. Eng., L.S.A., J.P., on the attainment of his ninetieth birthday. We published last week (p. 905) a short account of Dr. Morgan's long and interesting life.

UNIVERSITY COLLEGE, LONDON.—Medical scholarships and exhibitions have been awarded as follows: The Bucknill Entrance Scholarship (for proficiency in science), value £30 a year for four years, to Mr. G. Hall. Two entrance scholarships (for proficiency in science), value 55 guineas each, to Mr. A. Ferrière and Mr. E. Mapother. Two exhibitions (for proficiency in anatomy and physiology), value 76 guineas each, to Mr. C. S. Parker and Mr. T. L. Llewellyn.

DIPHTHERIA IN LONDON.—It is now some weeks since we made comparison of the amount and fatality of diphtheria in London during the period ending July 15th, and we now proceed to do so for the two four-weekly periods ended respectively on August 12th and Sept. 9th, which we may call the August and September periods. The four weeks ended on July 15th had shown an excessive amount of the disease as compared with preceding like periods of time during the current year, 1192 cases having been notified, or just upon 300 per week, and all the sanitary districts of the metropolis having been invaded. There were nine districts having over 50 cases each, other nine had only 24 in all, while five had from 30 to 50 each, and the remaining 20 districts had 328 cases among them, or an average of a score each, in the four weeks. The deaths from the disease had been 123, as compared with the corrected decennial average for the four weeks of 155, and the case mortality was 10·3 per cent. The August period showed but small decline in the amount of the disease, while the number of deaths increased by 24 to 147, the weekly averages of cases and deaths being 288 and 37 respectively. All save one of the sanitary districts were invaded, eight having upwards of 50 cases each, or 552 in all; other seven had from 30 to 50 cases each; other seven invaded areas had only 17 in all, the remaining 19 districts having 319 cases among them, yielding an average of 17 each. The deaths were, as stated, 147, and 23 below the corrected decennial average for the same weeks of 1889–98. In the first week of the period they exceeded the average by three; in the last week they fell below that average by 17, and had the average obtained all through they would have reached a total of 170 in place of the 147 actually registered. In the September period distinct decline was shown, alike in the amount of disease and in the number of deaths recorded. The cases totalled to 962, or 241 weekly; and three districts escaped invasion. Only five districts had 50 cases or more each and 325 in all; nine districts had from 30 to 50 cases each, five had only 16 in all, and the remaining 24 districts had 262 cases amongst them, or an average of 11 each. The registered deaths numbered 115, or

29 per week, and would have been 150 had the corrected decennial average prevailed during the period. No week was less than six below the average and one week was 12 below. The case mortality was 12·0 per cent. In the Outer Circle the deaths registered have been in the three periods to July 15th, August 12th, and Sept. 9th, 50, 50, and 38 respectively, and 27, 24, and 16 of these have been of persons belonging to the West Ham registration district, so that the suburban fringe of districts has shown a decline in the last period, as has also the district just named.

BOOKS, ETC., RECEIVED.

ARROWSMITH, J. W., Bristol, and WHITTAKER AND CO., White Hart-street, Paternoster-square, London.

University College, Bristol, Calendar for the Session 1899-1900. 1899.

BOYLE, R., AND SON, 64, Holborn-viaduct, London.

Natural and Artificial Methods of Ventilation (Cookles). 1899.

CONSTABLE, A., AND CO., Whitehall-gardens, Westminster.

Ten Shillings a Head per Week for House Books. By Mrs. C. S. Peel. 1899. Price 3s. 6d.

Atlas of Meteorology: A Series of over 400 Maps. Bartholomew's Physical Atlas, Vol. III., prepared by J. G. Bartholomew, F.R.S.E. and A. J. Herbertson, Ph.D., and edited by Alexander Buchan, LL.D., F.R.S. 1899. Price 52s. 6d. net.

CHURCHILL, J. & A., Great Marlborough-street, London.

A Handbook of Physics and Chemistry. By H. E. Corbin, B.Sc. Lond., and A. M. Stewart, B.Sc. Lond. Illustrated. 1899. Price 6s. 6d.

The Pathologist's Handbook: A Manual for the Post-mortem Room. By T. N. Kelynack, M.D., M.R.C.P. Illustrated. 1899. Price 4s. 6d.

FISCHER, GUSTAV, Jena.

Nervensystem. Von Dr. Zichen und Dr. Zander.

Handbuch der Anatomie des Menschen. Von Dr. Karl von Bardeleben. 7. Lieferung. 1899.

HADDEN, BEST AND CO., West Harding-street, London.

The Law relating to Infectious Diseases and Hospitals. By H. H. Copnall, Solicitor. 1899.

HOEPLI, U., Milano.

Gli Infortunii della Montagna. Dott. O. Bernhard. 55 Tavole e 173 Figure dimostrative. 1900.

Igiene della Pelle. Dott. A. Bellini. Con 7 incisioni. 1900.

HOLBROOK AND SON, Queen-street, Portsmouth.

Nugæ Canoræ, or Epitaphian Mementos (in Stonecutters' Verse) of the Medici Family of Modern Times. By Unus Quorum. 1899.

KEGAN PAUL, TRENCH AND CO., London.

An Outline Sketch Psychology for Beginners. By H. M. Stanley. 1899. Price 2s.

LEHMANN, J. F., München.

Atlas und Grundriss der Bakteriologie. Von Dr. K. B. Lehmann und Dr. R. Neumann. I. Teil, Atlas. II. Teil, Text. 1899.

Atlas und Grundriss der Gynäkologie. Von Dr. O. Schaeffer. 1899.

LEWIS, H. K., Gower-street, London.

Transactions of the Dermatological Society of Great Britain and Ireland. Edited by G. Pernet, M.R.C.S., and W. T. Freeman, F.R.C.S. 1898-9. Vol. V. 1899. Price 5s.

LONGMANS, GREEN, AND CO., Paternoster-row, London.

Surgery. By T. P. Pick. 1899. Price 25s.

A Farmer's Year. Being his Commonplace Book for 1898. By H. Haggard. With maps and illustrations. 1899. Price 7s. 6d. net.

MACLEHOSE, JAMES, AND SONS, Glasgow.

Raynaud's Disease: Its History, Causes, Symptoms, Morbid Relations, Pathology, and Treatment. By T. K. Monro, M.A., M.D. 1899.

MACMILLAN AND CO., London.

Introduction to the Outlines of the Principles of Differential Diagnosis with Clinical Memoranda. By F. J. Smith, M.A., M.D. Oxon., F.R.C.P. Lond. 1899. Price 7s. 6d. net.

NEWNES, GEORGE, LIMITED, Southampton-street, Strand, London.

The Story of Ice in the Present and Past. By Wm. A. Brend, B.A., B.Sc., F.G.S. Illustrated. 1899. Price 1s.

PHILIP, GEO., AND SON, Fleet-street, London.

Over-pressure. By S. De Brath and F. Beatty. 1899. Price 3s. 6d.

RENOUF, E. M., Montreal.

Illustrations of the Medical Faculty, McGill University. Published by permission of the Faculty. 1899.

SMITH, ELDER AND CO., Waterloo-place, London.

Dictionary of National Biography. Edited by Sidney Lee. Vol. XL. Watson—Whewell. 1899. Price 15s. net.

SWAN SONNENSCHEIN AND CO., London.

Text-book of the Embryology of Invertebrates. By Dr. E. Korschelt and Dr. K. Heider. Translated from the German by Matilda Bernard and edited by Martin F. Woodward. Vol. III. 1899.

WASHINGTON GOVERNMENT PRINTING OFFICE.

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Second series. Vol. IV. D.—Emulsions. 1899.

Materia Medica Labels, adapted for Public and Private Collections. Compiled from the British Pharmacopœia of 1898 and other Sources. (H. K. Lewis, Gower-street, London). Price 10s. 6d. net.—Magazines, &c., for October: Strand Magazine, Boy's Own Paper, Girl's Own Paper, Leisure Hour, Sunday at Home, Ludgate Magazine, Westminster Review, Contemporary Review, Friendly Greetings, Myra's Journal, Pall Mall Magazine, Windsor Magazine, Cornhill Magazine, Blackwood's Magazine, English Illustrated Magazine, Knowledge, Humanitarian, St. Peter's Magazine, Wide World Magazine, New Century Review.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.

BRICKWELL, F., M.B., L.R.C.P. Lond., M.R.C.S., has been appointed House Surgeon to the Windsor Infirmary.

CHAMBERS, E., M.D. Aberd., M.R.C.S., has been appointed Medical Attendant at Lloyd House, Pentonville, Metropolitan Asylum District.

CRAWFORD, W. T., M.D. Edin., B.Sc., F.R.C.S. Edin., has been re-appointed Medical Officer and Public Vaccinator for the Carlton Sanitary District of the Worksop Union.

DOUGLAS, ARCHIBALD R., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Resident Medical Officer to the Royal Albert Asylum for Idiots and Imbeciles of the Northern Counties, Lancaster, vice T. Telford-Smith, resigned.

EVANS, DANIEL EDWARD, M.B., B.S., M.R.C.P. Lond., M.R.C.S., has been appointed Anæsthetist and Pathologist to the Swansea Hospital.

GARLAND, EDWIN CHARLES, M.R.C.S., L.S.A., L.R.C.P. Edin., has been re-appointed Medical Officer of Health for Yeovil.

GOW, WM. B., M.B., C.M. Edin., has been appointed Medical Superintendent of a Lunatic Asylum, under the Government of New Zealand.

HALLAM, H., L.R.C.P. Lond., M.R.C.S., has been appointed Assistant Medical Officer for the Workhouse of the Ecclesall Bierlow Union.

HALL, H. S., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Leigh Workhouse.

HAYES, A. HERBERT, M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon to the East London Hospital for Children and Dispensary for Women, vice W. C. Ambrose, resigned.

INGRAM, A., M.B. Edin., L.R.C.P. Lond., M.R.C.S., has been appointed Assistant Medical Officer for the Workhouse of the Aston Union, vice V. N. Chitale, resigned.

JUKES, G., L.R.C.P., L.R.C.S. Edin., has been appointed Medical Officer of Health for the Longridge Urban Sanitary District, vice E. Eccles, resigned.

MACDONALD, M., M.B., Ch.B. Glasg., has been appointed Resident Medical Officer at Smithston Poorhouse, Greenock.

PARKINSON, C. H. W., M.R.C.S., D.P.H. Edin., has been re-appointed Medical Officer of Health by the Wimborne Rural District Council.

PARRY, EDWARD JAMES, M.R.C.S., L.R.C.P. Lond., L.S.A., has been appointed House Surgeon to the Torbay Hospital and Eye Infirmary, Torquay.

POWELL, C., L.R.C.P. Lond., M.R.C.S., has been appointed Junior Assistant Medical Officer for the Wandsworth and Clapham Union.

RABY, L., M.D. Durh., M.R.C.S., has been appointed Medical Officer for the First Sanitary District of the Devizes Union, vice E. N. Carless, deceased.

SHELLEY, P. W. G., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Cruwys Morchard Sanitary District of the Tiverton Union, vice G. F. Welsford.

SUTHERLAND, D. SAGE, M.B., Ch.B. Glasg., has been appointed Resident House Surgeon to the Cumberland Infirmary, Carlisle.

TODD, G. D., L.R.C.P. Edin., M.R.C.S., has been appointed Medical Officer to the Brook Dispensary, Selby, vice Joseph Todd, resigned.

YOUNG, RALPH, M.D. Durh., M.R.C.S., has been re-appointed Medical Officer of Health by the Royton District Council.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRMINGHAM AND MIDLAND SKIN AND URINARY HOSPITAL, Birmingham.—Assistant Surgeon.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Pathologist. Salary 100 guineas per annum. Also Assistant Physician. Also Second House Physician for six months. Salary at the rate of £30 per annum, with board and residence.

CANNING TOWN MEDICAL MISSION.—Assistant Physician, female. Board and lodging provided. Apply to Resident Physician.

COUNTY ASYLUM, Lancaster.—Assistant Medical Officer, unmarried. Salary to commence at £125 per annum, with a prospect of increasing to £250 per annum, with board, &c.

DEVONSHIRE HOSPITAL, Buxton, Derbyshire.—Assistant House Surgeon. Salary £50 per annum, with furnished apartments, board, and washing.

EDINBURGH INSTITUTION FOR TRAINING SICK NURSES.—Lady Superintendent. Apply to the Secretary, 10, Melville-street, Edinburgh.

FRENCH HOSPITAL AND DISPENSARY, 172, Shaftesbury-avenue, London.—Resident Medical Officer, unmarried, speaking French. Salary £80 per annum, with full board.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N.—Junior House Surgeon for six months. Salary at the rate of £30 per annum, with board, lodging, and washing in the hospital.

HARRIS PARISH COUNCIL.—Medical Officer and Public Vaccinator for the Southern Division of Harris. Salary £90, other emoluments. Apply to Mr. T. Wilson, Solicitor, Lochmaddy, Clerk.

HOSPITAL FOR THE INSANE, The Coppice, Nottingham.—Assistant Medical Officer, unmarried. Salary £150 per annum, with apartments, board, attendance, and washing.

HOSPITAL FOR WOMEN, Soho-square, London, W.—House Physician for six months. Salary £30 for that period.

KING'S COLLEGE, London.—The Sambrook Surgical Registrarship (open to King's College students only).

LEICESTERSHIRE AND RUTLAND LUNATIC ASYLUM.—Assistant Medical Officer, unmarried. Salary £150, rising by yearly increments of £10 to £200 per annum, with board, lodging, washing, and attendance. Applications to the Clerk, 10, New-street, Leicester.

LINCOLN COUNTY HOSPITAL, Lincoln.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

METROPOLITAN ASYLUMS BOARD.—Assistant Medical Officers at the Fever and Small-pox Hospitals, unmarried. Salary £160 per annum the first year, £180 the second year, and £200 the third and subsequent years, with board, lodging, attendance, and washing, subject to statutory deduction. Applications to the Clerk to the Board, Norfolk-street, Strand, W.C.

NORTH-EASTERN HOSPITAL FOR CHILDREN, London.—House Surgeon for eight months. Salary at the rate of £50 per annum. Applications to the Secretary, City Office, 27, Clement's-lane, Lombard-street, E.C.

PADDINGTON-GREEN CHILDREN'S HOSPITAL, London.—House Surgeon for six months. Salary at the rate of 50 guineas a year, with board and residence.

PARISH OF HAMMERSMITH.—Medical Officers and Public Vaccinators for the First and Fourth Districts of the Parish. Apply to the Clerk to the Guardians, 75, Fulham Palace-road, Hammersmith, W.

PARISH OF ST. GEORGE-IN-THE-EAST, London.—Assistant Medical Officer for the Infirmary and Workhouse. Salary £120 per annum, with rations and apartments. Apply to the Clerk, Guardians' Offices, Raine-street, Old Gravel-lane, E.

POPLAR HOSPITAL FOR ACCIDENTS, Poplar, E.—First and Second Assistant House Surgeons for six months. Salary at the rate of £65 per annum, with board and residence.

ROYAL FREE HOSPITAL, Gray's Inn-road, London.—House Surgeon for six months. Board, &c., provided. No salary.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, London.—Resident Medical Officer for six months. Salary at the rate of £100 per annum, with furnished apartments, board, and washing. Also Assistant Physician.

ROYAL INFIRMARY OF EDINBURGH.—Superintendent. Salary £500 per annum, with free house, coals, and light.

ROYAL NATIONAL HOSPITAL FOR CONSUMPTION, Ventnor.—Clinical Assistant. Board, residence, and lodging provided. Apply to Dr. Parry, resident medical officer.

ROYAL SURREY COUNTY HOSPITAL, Guildford.—Assistant House Surgeon. Salary £30, with board, residence, and laundry.

SALISBURY INFIRMARY.—Assistant House Surgeon, unmarried. Salary £50 per annum, with board, lodging, and washing.

ST. ANDREW'S HOSPITAL FOR MENTAL DISEASES, Northampton.—Junior Assistant Medical Officer, unmarried. Salary to commence at £150 per annum, with board, apartments, and washing. Salary increasing £25 per annum to £200.

ST. MARY'S HOSPITAL, Quay-street, Manchester.—Medical Officer for six months.

ST. MARY, Islington.—Resident Assistant Medical Officer and Dispenser of Medicines at the Workhouse and Infirmary, St. John's-road, Upper Holloway. Salary £80 per annum, with rations, apartments, and washing. Apply to the Clerk, Guardians' Offices, St. John's-road, Upper Holloway, N.

SEAMEN'S HOSPITAL SOCIETY, "DREADNOUGHT," Greenwich.—Senior House Surgeon for the Branch Hospital in the Royal Victoria and Albert Docks, E. Salary £75 per annum, with board and residence and an additional £25 per annum conditionally. Apply to the Secretary, Greenwich, S.E.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Assistant House Surgeon for six months. Salary at the rate of £30 per annum, with board, washing, and lodging in the hospital.

TOTTENHAM HOSPITAL.—Resident Medical Officer. Salary £60 per annum, with board, residence, and laundry. Also Honorary Physician to out-patients, and Honorary Gynæcologist to out-patients.

VICTORIA UNIVERSITY, Manchester.—External Examiner in Anatomy for three years.

WAR OFFICE, ARMY MEDICAL DEPARTMENT, 18, Victoria-street, London, S.W.—Civilian Medical Practitioners, for temporary service with troops in the United Kingdom for a period of six months. Remuneration at the rate of £270 per annum inclusive.—Applications to the Director-General, Army Medical Department, 18, Victoria-street, S.W.

WESTMINSTER GENERAL DISPENSARY.—Honorary Surgeon. Applications to the Secretary, 9, Gerrard-street, Soho, W.

YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £110 a year, with board, lodging, and attendance.

Births, Marriages, and Deaths.

BIRTHS.

GALLOWAY.—On Oct. 1st, at 54, Harley-street, W., the wife of James Galloway, M.D., F.R.C.P., of a daughter.

GIBB.—On Oct. 1st, at Aston Tirrold, Wallingford, Berkshire, the wife of J. A. Gibb, M.B., of a daughter.

REVELL.—On Oct. 4th, at 11, Granville-road, Southfields, S.W., the wife of Hugh Stanley Revell, M.R.C.S., L.R.C.P., of a daughter.

WALLIS.—On Sept. 29th, at Roman-road, Old Ford, E., the wife of Sidney Seymour Wallis, M.R.C.S., L.R.C.P., of a son.

MARRIAGES.

LANKESTER—FOX.—On Sept. 27th, at St. Mary's Church, Putney, Arthur Colborne Lankester, M.D., of Peshawar, North India, to Alice Grace, youngest daughter of the Rev. H. E. Fox, Honorary Secretary of the Church Missionary Society.

MAYBURY—WAGNER.—On Sept. 27th, at St. James's Church, Weybridge, Lysander Maybury, M.D., of Southsea, to Ethel Adela, the youngest daughter of O. H. Wagner of Wimbledon.

NIALL—LE VACK.—On Sept. 25th, at St. James's Church, Spanish-place, Manchester-square, William George Niall, M.D., of Guildford, to Margaret (Madge) Grant, eldest daughter of Mr. R. Le Vack of Great Yarmouth.

SUTHERLAND—GAIRDNER.—On Thursday, Sept. 28th, at the University of Glasgow, by the Very Rev. Dr. Story, Principal of the University, assisted by the Rev. Dr. Strong, Hillhead Parish Church, and the Rev. Dr. Reith, Free College Church, Lewis Robertson Sutherland, M.D., Professor of Pathology in the University of St. Andrews, to Helen Christian, elder daughter of Sir William Gairdner, K.C.B., Professor of Medicine in the University of Glasgow.

TREDGOLD—HANBURY.—On Sept. 29th, at St. Clement's Church, East Dulwich, by the Rev. Canon Daniell, assisted by the vicar, the Rev. H. E. Jennings, M.A., Alfred Frank Tredgold, son of the late Joseph Tredgold of Derby, to Zoë Blanche Townley Hanbury, daughter of the late Francis Alfred Hanbury, Esq., M.A., Barrister-at-Law, of Clapham and Lincoln's Inn, and stepdaughter of Dr. Gardiner, of Barry-road, S.E.

DEATHS.

CORBYN.—On Sept. 30th, at Hamilton-terrace, N.W., Frederick Henry Corbyn, M.R.C.S., L.R.C.P. Edin., aged 44 years.

FENOULHET.—On Oct. 1st, at Bloomfield-terrace, Paddington, John Henry Fenoulhet, M.A., M.R.C.S., L.R.C.P., third son of the late Andrew Chadwick Fenoulhet, aged 41.

HODGES.—On Oct. 3rd, at Addison House, Upper Edmonton, in his 42nd year, James Hodges, L.S.A., M.R.C.S. Eng., eldest son of the late Rev. James Hodges of Shippon, Berks, and St. Heliers, Jersey.

JACKSON.—On Oct. 1st, at Broadhurst-gardens, South Hampstead, Henry Ensworth Jackson, M.R.C.S., aged 52 years.

JESSOP.—On Sept. 30th, at Clare Lodge, Redhill, Charles Moore Jessop, Deputy Surgeon-General, son of the Rev. Thomas Jessop, D.D., of Bilton Hall, Yorkshire.

LAWFORD.—On Oct. 2nd, at Oriel House, Leighton Buzzard, Edward Lawford, Esq., M.D., aged 79 years.

LILLIES.—On Oct. 3rd, at The Lawn, Shepherd's-bush, George William Lillies, M.D., in his 77th year.

PHILSON.—On Sept. 28th, suddenly, at Eastbourne, William Philson, M.D., late of Cheltenham.

SHURLOCK.—On Sept. 27th, at Eldridges, Chertsey, Manwaring Shurlock, M.R.C.S., L.S.A., aged 85.

WALLACE.—On Oct. 1st, at St. John's-terrace, Colchester, Alexander Wallace, M.D., M.A. Oxon., M.R.C.P., aged 70. Foreign and Colonial papers please copy.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

WHAT IS LIFE?

To the Editors of THE LANCET.

SIRS,—In a leading article in THE LANCET of Sept. 23rd on the work of the British Association you say: "The problem, What is vitality? is still obscure and chemistry so far would appear to throw darkness on the subject rather than light." You also speak in the same article of the "one great central mystery, the nature of things and of life," and criticise Mr. Herbert Spencer's definition of life as implying the continuous adjustment of internal to external relations, especially in reference to the proved fact that seeds exposed for some time to the intense cold of liquid hydrogen are unaffected thereby and can, and do, germinate as usual when put into proper conditions.

I have read the writings of Dr. Lionel Beale on "Vitality" and cannot agree with them, because he postulates a mysterious unknown entity or quality to explain what appears to me to be quite susceptible of explanation by known causes—i.e., by molecular mechanics or physics. We know that oxygen and hydrogen in union produce water. No one with our present knowledge could have predicted or mathematically foreseen, from a knowledge of the properties of its elements, that such a substance as water would result from their union. Yet no one nowadays would argue that some mysterious entity, which we may call "aquosity," has come in to determine the result. No doubt if our knowledge of the oxygen and hydrogen atoms had been mathematically complete and perfect, the fact that their union would form water could readily have been foretold. I presume nobody now doubts this. A century ago the "phlogiston" theory ruled the minds of men in regard to the evolution of light and heat in combustion. In an ordinary fire of coal or wood another mysterious entity was supposed to be liberated and it was called "phlogiston." Now we know that the light and heat given out are simply due to the play of molecular forces, rapid atomic movement under chemical activity, and the corresponding ethereal undulations induced thereby. There is a striking, though rough, analogy between a fire and a life, so much so that it has struck the popular attention—a fire is "living," "dying," or "dead"; it is "well-fed" or "dying for want of food," or "smothered" for want of air. Similarly, a life is described as a "vital spark," a dying life as the "last flash in the pan," &c. It may be worth while inquiring how far the organisation termed a "fire" resembles the organisation termed a "life" and how far it differs from it, in order clearly to apprehend where the analogy, and therefore the explanation, of life by molecular mechanics may be argued at fault. I take life in its simplest form as a piece of lowest protoplasm.

Resemblances.—1. Each has, or may have, a birth from a pre-existing similar condition (a "parent"); can pass its existence on to similar "offspring" by removal of a portion of its own substance; and in defect of nutriment each dies. 2. Each requires nourishment and is able to assimilate it and can only go on existing so long as that nourishment is supplied. 3. Each produces by chemical interaction with its environment energy, usually in the form of heat and motion. 4. Each has its waste products, its excreta. 5. Each can grow larger, according to the amount of nourishment it receives, and that, not as a crystal grows, by external accretion only, but by internal change as well.

Differences.—1. In a molecule of living fire, if we may use the term, the atoms at work are few in number; usually, perhaps, two of hydrogen, two of oxygen, and one of carbon only; and the energy liberated is great and immediate. In a molecule of living protoplasm many atoms are engaged in action, probably hundreds, though the elements are the same, with the addition of nitrogen; the energy liberated is small at one time, but prolonged in duration. 2. The protoplasm has some power of moving *en masse*, though how far this may be the case in the most primitive form I am unable to say. 3. The protoplasm has some power of choice, apparently, in rejecting unassimilable material and even in ejecting it, though, again, how far this can be said to exist in primitive forms I am unable to say. Of course, a fire will reject unassimilable material, such as a stone.

These are all the essential differences so far as I know. When we consider the very complex relations of the hundreds of atoms contained in a molecule of protoplasm and the complicated forces reacting amongst them, surely it is possible to see, though not at present to trace every step, and so mathematically prove, how life in its primitive form and first feeble manifestations may arise, without calling in the assistance of a mysterious unknown entity to explain it.

It seems easy to me to understand on these principles why the most intense cold will not kill a seed; in fact, it is a necessary deduction. Molecular and atomic motion is brought almost to a stop by such cold, leaving, however, the relative positions of the atoms unchanged, so that a renewal of warmth brings back the play of activities unaltered. On the other hand, heat, by increasing molecular movement beyond the stage at which the complicated system of molecules can remain stable, breaks them up and so kills the seed. It is known that many forms of lower life, even so high in the scale as fish, can retain their life, latently and unconsciously, for an indefinite time when frozen in blocks of ice, to resume activity when thawed. It is even probable that a human being, if he could be frozen throughout *instantly* and thawed as instantly, might go through the same experience; but of course in the higher animals the necessarily *gradual* process introduces complications which must be fatal. Although, then, as I have shown above, it appears to me that the problem of *life* is not necessarily an insoluble one, even with our present data to go on, yet the further and higher problem of *consciousness* is absolutely inscrutable it must be admitted, and the human mind does not possess apparently the slightest germ of a faculty calculated to enable us to comprehend its origin on any known data.

A very powerful illustration of the extreme minuteness of the atom is given in *Nature*, Sept. 7th (Professor Hele-Shaw on the "Motion of a Perfect Liquid"), and as it has some relation to the considerations above adduced I will briefly quote it. Lord Kelvin has shown that if a drop of water were magnified to the size of the earth the ultimate particles would be between the size of cricket-balls and footballs. This means that if in a tumbler holding half a pint of water, the top be closed by a sheet of paper and a minute hole pricked in it, so that one and a half billions of particles could escape per second—equal to a thousand times the population of the world per second—the time required to empty the glass would be between seven millions and forty-seven millions of years.

I am, Sirs, yours faithfully,

C. A. RAYNE, M.D., B.S. Lond., M.R.C.S. Eng.,
Honorary Medical Officer, Royal Infirmary, Lancaster.

Sept. 26th, 1899.

"THE LYMPH OF THE NATIONAL VACCINE ESTABLISHMENT."

To the Editors of THE LANCET.

SIRS,—The following account of the results obtained with the National Vaccine Establishment lymph shows clearly its steady deterioration since the beginning of the year, when it was all that could be desired. I may mention that every case was vaccinated in four places and a fresh tube was used for each child. Between the beginning of January and the middle of May last I vaccinated 40 children, making 160 insertions, from which I had 155 fine vesicles. From the next supply—still in May—24 insertions produced 16 vesicles. In June another 24 insertions produced only 11 vesicles, the culmination being arrived at in August when 36 insertions resulted in two small vesicles In the September supply there was a slight improvement: 20 insertions gave seven small vesicles. In August I purchased 10 tubes from a London institution and with them I revaccinated the cases which had failed altogether with the National Vaccine Establishment lymph, the result being that every one of the 40 insertions produced a typical vesicle, thus proving that the former results were due neither to the mode of vaccination nor to the heat of the weather. I think attention should be directed to the injurious effects which will follow the supply of this inefficient lymph beyond the unnecessary additional work thrown upon public vaccinators and the annoyance and aversion to vaccination produced in the public mind by the ineffectual repetition of the operation. The most important matter for consideration is the effect which will be produced by the very numerous cases in which only one or two small vesicles have risen, which are far worse than total failures, because the latter can be rectified by revaccination but not so the former. An experience of over 30 years has taught me that it is useless to attempt to revaccinate immediately after these small vesicles have matured—that is to say, after the date at which they are seen for inspection. Consequently they have to be certified as successful vaccinations, although very imperfectly protected. When the next epidemic of small-pox takes place—invited, indeed, by the existence of these cases in large numbers—a considerable proportion of them will doubtless be attacked and will appear in the returns as "vaccinated," throwing discredit on vaccination and playing into the hands of anti-vaccinationists who will not be slow to make use of these convenient statistics. In conclusion, I can only hope that the department will be awakened to the seriousness of the responsibility they are incurring whilst the results may yet be restrained within moderate bounds, and by reconsidering their methods of production and storing be enabled to supply us with lymph on which we can place reliance.

I am, Sirs, yours faithfully,

Oct. 3rd, 1899. PUB. VACC.

GRATUITOUS ATTENDANCE ON MEMBERS OF THE MEDICAL PROFESSION AND THEIR FAMILIES.

To the Editors of THE LANCET.

SIRS,—You have very lucidly treated the above subject in THE LANCET of Sept. 30th. The advice you give is one pretty generally followed by members of our profession. Not universally, however, and hence misunderstanding and ill-feeling not infrequently crop up, as in the case which gives rise to your comments. During a practice of over 40 years I have invariably followed this custom—not to charge for attendance on medical brethren or their families. The custom is, I think, a commendable one so long as it is exercised in reason. It is capable of abuse, however, as I shall presently show. This question must be looked at from two different points of view: first, the consulting physician's or surgeon's; and secondly, the general practitioner's.

In regard to the first, when a daughter, say, of a medical man consults a physician he gives her advice and hands over a prescription,

Here the matter ends and no great inroad has been made on the physician's time or patience. The case is very different with the general practitioner. The latter may be involved in a protracted and anxious attendance, and medicines and even surgical appliances supplied. Not long ago I was called to attend the daughter of a medical man. This lady had long been "independent of parental support," as you put it. I made about 70 visits and sent medicines regularly as they were required. When my attendance terminated I was coolly told that as she was the daughter of a medical man she was entitled to gratuitous attendance. Here this lady demanded as a right my services instead of regarding them as a favour—as given from courtesy. This lady subsequently passed into the hands of another medical man who at the termination of his attendance rendered his account and as it was not promptly paid threatened prosecution. This case serves to show that the custom is not universal—in truth, that it stands on a very unsatisfactory footing, and that you will confer a favour on the profession, especially the general practitioner, by allowing it to be canvassed in your columns. There is, to be sure, a *per contra*. When I have rendered services thus and have declined fees I have often received some recognition in the shape of a present. Thus, a medical officer in the P. & O. Company was taken ill in the house of one of my patients. I attended him during his illness, declined fees which were offered, and had a present made me of cigars which I regarded as ample recognition of my services. Again, I attended the wife of a medical friend in her confinement and I received a very handsome reading-lamp which amply compensated me for my trouble. What I wish especially to see dissipated is the notion so universally diffused that a son or a daughter of a medical man can by right demand the gratuitous services of any other medical man.

I am, Sirs, yours faithfully,

Oct. 3rd, 1899. J. B.

"SCHOOLS FOR THE DEAF."

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Sept. 16th, p. 816, is a letter from the Rev. F. D. Robinson calling attention to a private school for the deaf situated in North-west London. Will you allow me to add my testimony to the very careful and complete teaching given, of which I have practical experience, as my deaf son has been a pupil there for over six years, during which time he has made considerable progress both in lip-reading and also in speaking, as well as in general knowledge. He has also received the most unremitting kindness and care from the worthy principal and his estimable wife who lay themselves out for the comfort and welfare of their pupils—in fact, my son quite looks upon their house as a second home. I am extremely sorry to learn from your correspondent that the school is not in a flourishing condition as regards numbers. This I am certain is not due to any defect in teaching or management but because it is not well known. Any information I shall be most happy to give.

I am, Sirs, yours faithfully,

Clifton, Bristol, Oct. 3rd, 1899. C. KING RUDGE.

THE "MEDICAL" COLUMN IN A LAY PAPER.

A CORRESPONDENT has sent us the following from the *Echo*. It is the closing sentence of an answer given to a correspondent who described himself or herself as having certain very obvious symptoms. "In between attacks try the following to get you in better condition:—Pot. iodi., 96 gr.; quin. sulph., 48 gr.; inf. quass., 12 gr. Dose, a tablespoonful in as much water three times daily between meals."

THE LATE MR. VOSE SOLOMON.

To the Editors of THE LANCET.

SIRS,—May I, as a relative of the family, correct a slight error in your obituary notice of the late Mr. Vose Solomon? You state that he married Miss Baker, daughter of a Devonshire surgeon. Mrs. Solomon's maiden name was Collyns, and she was a daughter of Mr. Wm. Collyns, surgeon, of Kenton, Devon, and niece of John Palk Collyns, surgeon, of Dulverton, author of the work on the "Chase of the Wild Red Deer on Exmoor."

I am, Sirs, yours faithfully,

A. DE WINTER BAKER, L.R.C.P. Lond., M.R.C.S. Eng.

Overstrand Mansions, Battersea-park, S.W., Sept. 30th, 1899.

"A HAPHAZARD METHOD."

To the Editors of THE LANCET.

SIRS,—Although the jury undoubtedly took a correct view in condemning the practice of prescribing without an interview, a view which you naturally endorsed, it is questionable whether under the present system of things it is advisable altogether to condemn medical men on this score—i.e., if to the public interest to do so—because if in all cases patients meet with a refusal they immediately procure something from the nearest druggist, who prescribes *ad libitum*, and no check whatever has been taken by public prosecutors to stop this dangerous practice. Until comparatively recently I was under the impression that druggists limit themselves to what is known as counter prescribing, but I have been miserably deceived on this account. For example, a druggist in this neighbourhood sent a bottle of medicine recently to a patient, but before I could arrive in the morning she was dead, but being an aged person and having suffered shock from the death of a relative on the previous day, and the fact of her having sent for medicine excluding the idea of suicide, I represented to the coroner that there were, in my opinion, no suspicious circumstances and no inquest was held, as it occurred to me that there could be no object in creating an inquest for the mere purpose of reprimanding a druggist. However, I took the precaution of warning the said druggist and I communicated with the coroner thereon. On more than two other occasions I have attended serious cases where medicine has been forwarded by relatives or otherwise, but your valuable space will not admit further description. Now, what I wish to submit is this—that if prescribing is to be made a mere matter of guesswork the medical man is more likely to guess correctly than the druggist who has no idea whether he is dealing with a medical or a surgical case. Indeed, I have attended cases myself where I have been asked to prescribe previously but have refused and where the immediate removal of the patients to the hospital has probably saved life from timely operative measures, but a druggist would have undoubtedly prescribed, the delay probably resulting in death.

I am, Sirs, yours faithfully,

Sept. 23rd, 1899. M.R.C.S.

*** Our correspondent may give the counsel of expediency, but we are forced to differ from him. Medical men must do right even though others do wrong.—ED. L.

"A BEAUTIFUL WORLD."

WE have received the journal of the Society for Checking the Abuses of Public Advertising for October, 1899, which appears fitfully under the title "A Beautiful World," and which energetically fights against the evils of advertising disfigurement. The honorary secretary is able to claim that the society during the six years of its existence has made substantial advance towards the goal which it set before itself.

> "We have never," he writes, "pretended that as an immediate result of our effort there would be a sensible diminution of the abuses which we sought to combat. Our aim, as defined, was (1) to develop and direct public opinion with a view to obtaining such legislative and administrative measures as would enable local municipal bodies to enforce the standard approved by their constituents; and (2) to educate (if the phrase be not too pretentious) public opinion to a sense of the value of beauty and dignity in the aspect of our towns and rural districts. In brief, we dismissed as chimerical the notion that we could do anything effectual in detail till we had procured acceptance for the governing principle."

The abuses of public advertising do not press with equal hardness upon all, nor is there any very obvious reason why medical men should share with the more particularly artistic section of the community a sensitiveness to the horrors of hoardings; but we note that medical men have played a prominent part in the good work of this society, for the names of several medical men are mentioned as supporters and helpers. To give one example, on the London County Council Dr. Longstaff took charge of a memorial from the architects practising in the metropolis to the County Council drawing the attention of the Council to the advisability of obtaining statutory control over public advertisements. The memorial may, we think, lead to some preventive measures being taken against the flash-light advertisements, the hideousness of which is patent to all and the dangers of which have been commented upon in our columns.

A CONVENIENT AND PORTABLE SPRAY APPARATUS UTILISING THE PRESSURE OF WATER MAINS.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Jan. 21st, 1893, and July 21st, 1894, there appeared favourable notices of a spray apparatus in which the pressure of the water main was utilised. The address of the makers was given the first time as Messrs. C. and S. Frank, 10, Fore-street, E.C., and the second time as Mr. C. Frank, 25, Aldermanbury, E.C. The apparatus consisted of a large metal globe fitted with a tube inserted nearly to the bottom of the globe and terminating outside in a stopcock, to which may be attached a fine jet or spray according to requirements. The makers are apparently no longer to be found at their former addresses, and I should therefore be greatly obliged if any reader of THE LANCET could inform me where the apparatus may be obtained.

I am, Sirs, yours faithfully,

Sept. 25th, 1899. C. A., M.B.

SHOP SEATS EXHIBITION.

THE award of prizes in the Early Closing Association's Shop Seats Exhibition is announced, the judges being well-known metropolitan drapers—Mr. William Owen (Westbourne Grove), Mr. M. H. Rackstraw (Islington), Mr. W. P. Jones (Holloway), Mr. J. Arthur Pyne (Lewisham), and Mr. Henry Arding (Clapham Junction). The board of management and assistants were represented by Messrs. Sale, Lees, and Harris. The exhibition has been a great success. After a careful inspection of more than 200 models, many of an ingenious character, the judges awarded the *Drapers' Record* prize of 10 guineas to Messrs. Sage and Co., of Gray's Inn-road, for the best seat adaptable to fixtures and occupying least room. The Early Closing Association's three prizes of £5 each were awarded to Messrs. H. G. Wells & Son, Hampden Gurney-street, for a seat adaptable to drawers and boxes; to the Lamson Store Service Co., Cheapside, for the "Ely" seat; and to Mr. J. Llewellyn Morgan, of Cardiff, for a seat combining strength and economy.

A NEW TEMPERATURE CHART.

WE have received from Mr. James F. Wilkinson, of the Gutenberg Works, Pendleton, Manchester, a specimen of a new temperature chart which he is prepared to supply to the medical profession either singly or made into pads. The feature of the chart, which is of the size of a quarto page and very clearly ruled, is the large space allotted to any necessary records of the ratio and character of pulse and respiration. Each chart is ruled so that it can be used at will as a twelve-, eight-, or six-hour chart, which is certainly a convenient arrangement.

Medicus.—The person in question implies that he is a Scotch Licentiate, but we doubt it. No one on the Medical Register answers to his description of himself and the Medical Directory contains no mention of him. His methods are those of a quack and that is what he most probably is.

Izal.—The county-court must be used if one of the other methods fails. We advise our correspondent to employ a solicitor.

E. D. should, in our opinion, refuse the information sought from him.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Oct. 5th, 1899.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation Vacuo.	Maximum Temp. Shade.	Min. Temp	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
Sept. 29	29·69	WSW	1·07	92	60	44	46	48	Hazy
,, 30	29·24	S.	0·03	83	57	47	48	49	Cloudy
Oct. 1	29·55	N.E.	0·18	84	62	48	51	53	Cloudy
,, 2	29·31	S.W.	0·01	70	60	52	52	54	Raining
,, 3	30·03	S.W.	0·03	98	62	44	49	52	Cloudy
,, 4	29·79	N.E.	0·20	73	58	52	54	55	Raining
,, 5	30·05	E.	...	58	53	49	50	52	Overcast

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (9th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (10th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.).

WEDNESDAY (11th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.).

THURSDAY (12th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.).

FRIDAY (13th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M., Ophthalmic 10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M. and 6 P.M.).

SATURDAY (14th).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 P.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (9th).—MEDICAL SOCIETY OF LONDON.—8 P.M. General Meeting. 8.30 P.M. Ordinary Meeting. Dr. F. Roberts (President): Opening Address. Discussion on Personal Experience in Relation to Serum Therapeutics and Antitoxin Treatment by Dr. Mitchell Bruce, Dr. G. Heron, Dr. S. Martin, and Dr. J. Washbourn.

WEDNESDAY (11th).—HUNTERIAN SOCIETY.—8.30 P.M. Dr. Sansom: The Effects of Influenza on the Heart and Circulation, their Clinical History and their Treatment. (First Hunterian Society Lecture.)

THURSDAY (12th).—BRITISH GYNÆCOLOGICAL SOCIETY (20, Hanover-square, W.).—3 P.M. Specimens will be shown by Dr. Macnaughton-Jones, Mr. C. Ryall, and others. Paper:—Mr. J. F. Jones (Birmingham): On the After-results of Operations on the Uterus and Appendages.

FRIDAY (13th).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M. Papers:—Dr. Rolleston: A Case of Acute Streptococcal Meningitis supervening in the course of Chronic Nephritis.—Dr. Churton: Aneurysm of the First Part of the Arch of the Aorta projecting into the Axilla.—Dr. F. J. Smith: A Case of Obstinate Anæmia in a young Girl associated with peculiar Trophic Disturbances and with doubtful Thrombosis of the Superior Longitudinal Sinus.—Mr. H. B. Robinson: Acute Intestinal Obstruction due to an Intussusception of Meckel's Diverticulum.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

TUESDAY (10th).—HOSPITAL REFORM ASSOCIATION (St. Martin's Town Hall).—4 P.M. Conference. 8 P.M. Conference.

WEDNESDAY (11th).—ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN (Leicester-square, W.C.).—4.30 P.M. Dr. M. Dockrell: Bullous Eruptions. (Post-graduate Course.)

HOSPITAL REFORM ASSOCIATION (St. Martin's Town Hall).—4 P.M. Conference.

THURSDAY (12th).—THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Dr. Penrose: Demonstration of Selected Cases.

CHARING-CROSS HOSPITAL.—4 P.M. Dr. J. Mitchell Bruce: Cases in the Wards. (Post-Graduate Course.)

During the week marked copies of the following newspapers have been received: *Manchester Herald, Coleraine Chronicle, Warwick Times, Alnwick Gazette, Market Drayton Advertiser, Falkirk Mail, Cornish Times, Huddersfield Examiner, Rugby Times, Sheffield Independent, Blackburn Telegraph, Birmingham Daily Post, Scotsman, Newcastle Daily Chronicle, Warrington Observer, Brighton Gazette, Western Daily Press, Liverpool Daily Post, Times of India, Pioneer Mail, Bristol Mercury, Architect, Citizen, Shipping, Chester Chronicle, Yorkshire Post, Builder, Mining Journal, Nuneaton Observer, Leeds Mercury, Sanitary Record, Hertfordshire Mercury, Local Government Chronicle, Reading Mercury, City Press, Brechin Advertiser, Health, Ceylon Standard, Local Government Journal, Sleaford Journal, Bournemouth Guardian, Colchester Mercury, Illustrated Police News, Bo'ness Journal, Justice, Loughboro' Examiner, Surrey Advertiser, Weekly Free Press and Aberdeen Herald, West Ham Guardian, Garston Reporter, Indian Mirror (Calcutta), Humanitarian, Ryle Journal, Caterham Free Press, Newtownards Chronicle, Behar Times, Public Health, &c., &c.*

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them. Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

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I.—Interested; Mr. R. B. Ingram-Johnston, Chester-le-Street.

J.—Surgeon A. H. Jeremy, R.N., H.M.S. *Terrible*, Cape of Good Hope.

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U.—Understudy.

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Letters, each with enclosure, are also acknowledged from—

A.—Mr. F. C. Angear, Chatham; Dr. A. Anderson, Sheffield; Apollinaris Co., Lond.; Messrs. H. Archer and Co., Malvern; Mr. J. Adams, Southampton; A. E. G.

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